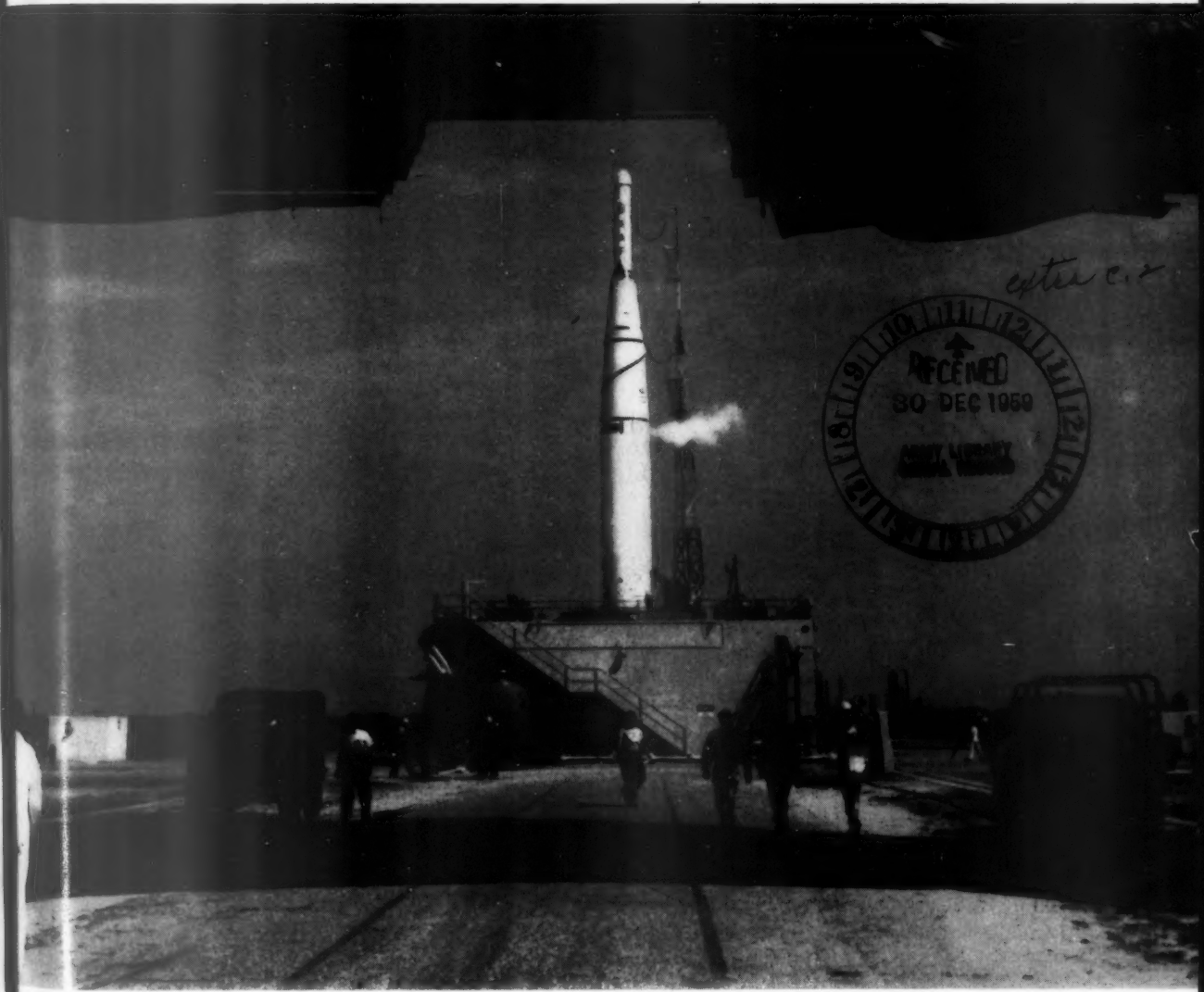
December, 1959 / $1

ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS



RECEIVED
30 DEC 1959

Crystal Ball Gazing at the Puzzle Palace ..... p. 13

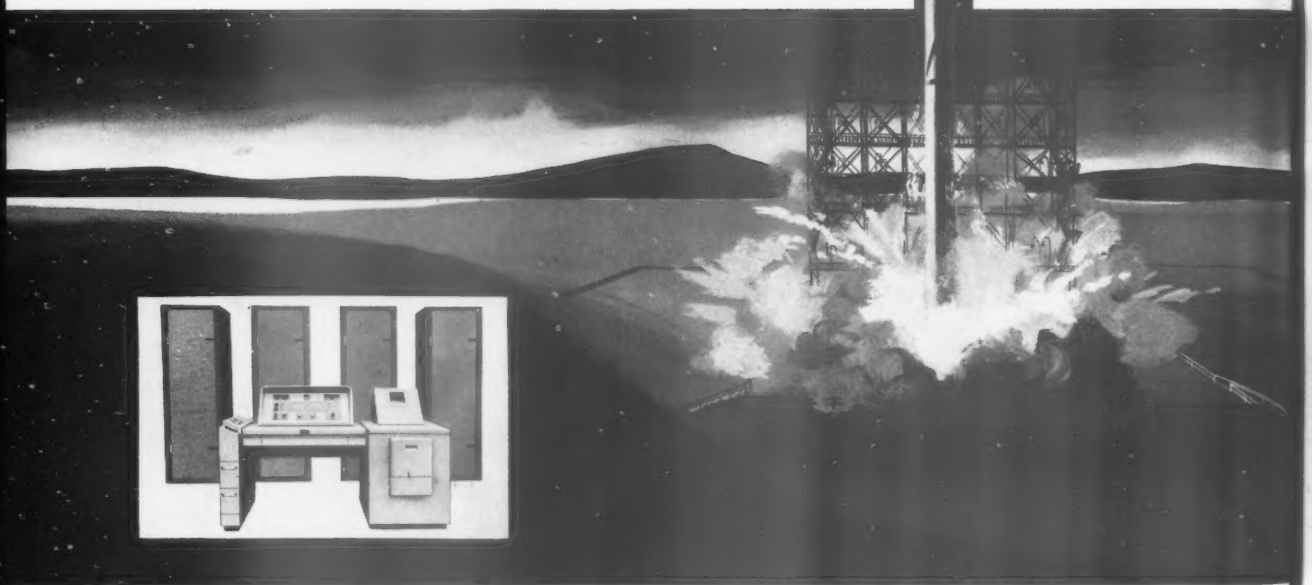
Logic and Leadtime at ARDC..... p. 29

complete contents ... p. 3

The Checkout that says "GO" or "NO GO"

APCHE

(Pronoun "AP-SHE")



APCHE (Automatic Programmed Checkout Equipment) is a solid-state, universal, high-speed, highly reliable, compact general-purpose tester designed especially for automatic checkout of aircraft, missile and space systems and their supporting systems. In its various versions (differing in input media, size and weight) APCHE installations may be fixed, mobile, airborne or submarineborne. APCHE was designed and is being produced as a part of RCA's ground support electronics subcontract from the Convair (Astronautics) Division of General Dynamics Corporation, prime contractor for the ATLAS Intercontinental Ballistic Missile.

The system being supplied to Convair for the ATLAS Program includes a console and four rack cabinets providing both analog and discrete test functions with a resulting printed and GO-NO GO indication. As a product of RCA's Missile Electronics and Controls Department, Burlington, Massachusetts, APCHE is one of the latest RCA developments in the field of military weapon readiness equipments.

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Teletype Model 28 printer, to the right of control console, brings FAA operator continuous operational weather data and other information important to air navigation. Radio links operator with planes in flight.

Teletype equipment used in 24 hr. reporting of vital flight data by Federal Aviation Agency

Early barnstormers relied on fragmentary weather reports and an occasional phone call to a distant flying field. Today, whenever a pilot files a flight plan he takes on an extra co-pilot—the Federal Aviation Agency's communications service.

37,500-mile network. A vital element in this service is a data gathering and disseminating network, which today has 37,500 miles of wire and includes some 2,600 Teletype page printers, plus tape punches and readers. Over this network, day and night, flow operational weather data, collected automatically every hour—plus Notices to Airmen (called "NOTAMS") which contain such information for pilots as the status of air navigation aids, the shutting down and reopening of navigation facilities, and abnormal or hazardous conditions at airports or along the airways. The FAA also operates a second wire network, utilizing Teletype equipment, over which flight plans of all aircraft, military as well as civilian, are transmitted for flight control and air safety.

Continuous improvement in facilities. Through the years the Federal Aviation Agency has followed a continuing program of improving its facilities as the nation's air traffic grew. For example, both the aviation weather relay and the flight supervisory networks utilize built-in control features of the Model 28 "stunt box." Also, new Teletype tape punch and reader equipment, with a potential of 1,000 words per minute, will soon be installed to further increase the speed and flexibility of the automatic weather reporting system.

Additional information. Twenty-four hour duty, such as is required in FAA service, has traditionally been "standard operating procedure" for Teletype equipment. To this the new Model 28 line adds higher speed, unusual flexibility, and extensive capacity for built-in features and controls. For further information, please write to: Teletype Corporation, Dept. 72M 4100 Fullerton Ave., Chicago 39, Illinois.

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Translation

Kansas City: Special observation #4, 1500 feet scattered clouds, measured ceiling 2500 feet overcast, visibility 4 miles, light rain, smoke, sea level pressure 1013.2 millibars, temperature 58°, dewpoint. 56°, wind south 7 knots, altimeter setting 29.93 inches, pilot reports top of overcast 5500 MSL, rain began 5 minutes past the hour, overcast occasionally broken, runway 25 visual range 3200 feet.

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With the help of suppliers and associates, Norair can produce anything in the space/aircraft field that the mind of man can devise. But Norair is not content to rely on its vast capacities and capabilities simply to get the work out on time. Management takes the advanced step, because it knows that its profits come, not through charging the customer more, but through reducing costs. Going beyond standard management procedures, Norair brings new techniques, new methods, new thinking to all areas to deliver new and more effective capabilities to answer the problems of superior Free World defense in the space age – at minimum cost.

NORAIR

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Hawthorne, California

ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS

DECEMBER, 1959

Volume 6—No. 3

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FEATURED NEXT MONTH

Where Navy's BuWeap is Headed . . . Do We Need a Single Manager for Communications . . . Familiarity Breeds Good College Recruiting

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Dates to Circle

December 27-30
American Statistical Association Convention—Washington, D.C.

December 28-30
American Economic Association—Washington, D.C.

December
Radiological Society of North Ameria—Chicago, Ill.

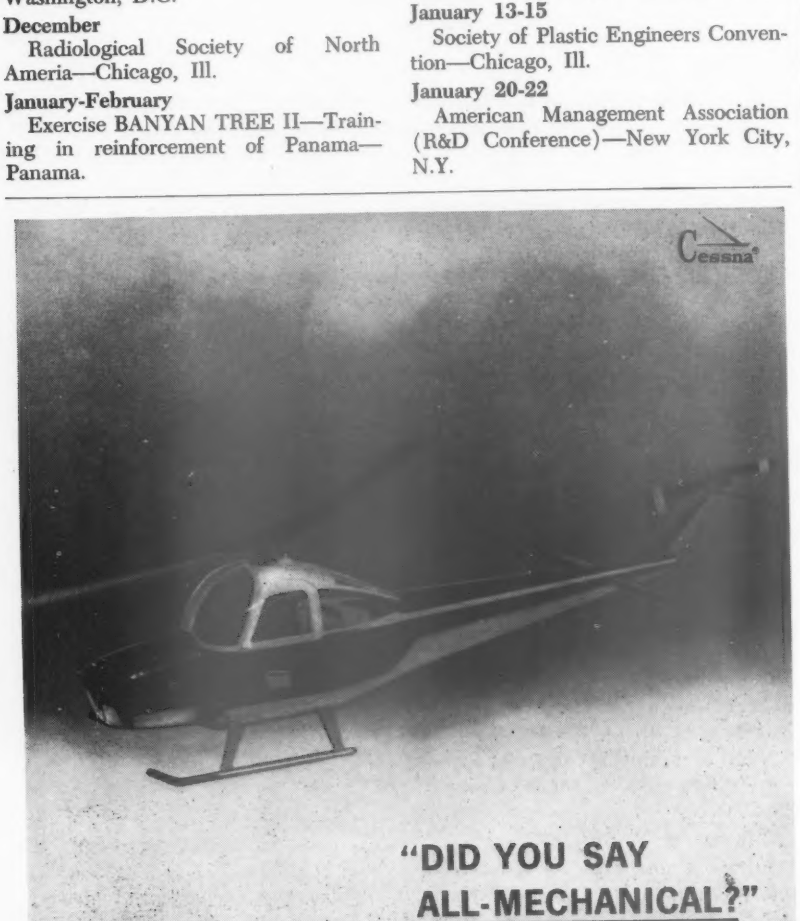
January-February
Exercise BANYAN TREE II—Training in reinforcement of Panama—Panama.

January 11-13
Sixth National Symposium on Reliability and Quality Control—Statler Hilton Hotel—Washington, D.C.

January 11-29
Workshop on Executive Leadership and Control in Government—The American University, Washington, D.C.

January 13-15
Society of Plastic Engineers Convention—Chicago, Ill.

January 20-22
American Management Association (R&D Conference)—New York City, N.Y.



ON TOUR WITH CESSNA'S NEW MINIMUM-MAINTENANCE HELICOPTER: CH-IC

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Military Division
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Published monthly by American Aviation Publications, Inc., 1001 Vermont Ave., N.W., Washington 5, D.C. Telephone: STerling 3-5400.

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Witch Hunts in the 86th

THE second session of the 86th Congress of the United States of America will convene in Washington, D.C. next month, burning with election-year fever, loaded with straw votes statistics, and eagerly hunting for an issue to hang a headline on. The Defense Department, being the best stocked, will be the most sought-after game preserve—as it usually is.

Theoretically, the nation has let a contract with the Pentagon to protect the nation from physical destruction. There's a sound management view, which this magazine shares, that the nation's elected representatives should be doing everything they can to facilitate the carrying out of that contract.

Pentagon headaches today are more excruciating than they have ever been. A size-too-small budget, coupled with the knowledge that, technically, any hardware chosen can be built, has driven the nation's defense program to a crossroads. The need for competent, comprehensive long-range planning, dynamic decision-making, and intelligent command, control and coordination has never been more critical. The Pentagon is doing its best to tap the country's talent, wherever it exists, to fill that need.

Instead of operating as a top policy part of the team, rock-head elements on the Hill have set themselves up as adolescent Inspector Generals, have chosen to fritter in the last few months through a nonsensical mish-mosh of inquiry into military hiring of civilians, civilian hiring of military, small business exploitations, *et al.*, whose only goal evidently has been to establish whether or not we are all honest.

Their brains bolted together by their own incompetence, the Congressional lunatic fringe has been submitting candidates for top defense office to a sack-cloth-and-ashes routine which presumes (until the candidates prove otherwise) that they are contributing their energies not from a sense of public duty but in order to peddle influence. Rattlings in the wings indicate that this knot-head "viewing with alarm" will be even more vociferous in '60 than it was in 1959. (Latest travesty: the case of Charlie Critchfield—see Washington Background.)

Much has been written about the ability of the Soviets to develop a radically new weapon much faster than we. The hysterians infer communist success is due in large measure to the flexibility of their totalitarian government. Bosh. We could generate the same speed, or a greater one, if we gave something more than lip-service to the strengths of the free enterprise system, fostered in the public forum a greater faith (taken for granted in a shooting war) in the integrity of the men in the defense business.

In fact, our most spectacular successes in the weapons race have been in the very areas (the Manhattan project, the Jupiter and Atlas Missiles, the Fleet Ballistic Missile program) where we have left almost entirely to their own devices the men given responsibility for development of a particular weapon.

Trust is a basic ingredient any top manager must convey to the men doing the work if he is to get anything out of them. The rock-heads will grant this to no one, apparently, unless he can prove by several score affidavits that his credentials are as pure as those of Sir Gallahad about to embark on a search for the Holy Grail.

These gyrations to make something out of nothing have resulted, and are continuing to result, in such nonsense as: stop-and-go financing, trying to legislate integrity, challenging Defense authority to buy tomorrow's exotic military hardware on some basis other than the one they used twenty years ago to procure M-1 rifles, driving a wedge of forced aloofness between industry and the military at the very time when they must develop a closer rapport than ever before—purveying the misguided junk that if the two address each other by their first names, it is a clue to the public that one or the other, or both, are committing some moral transgression.

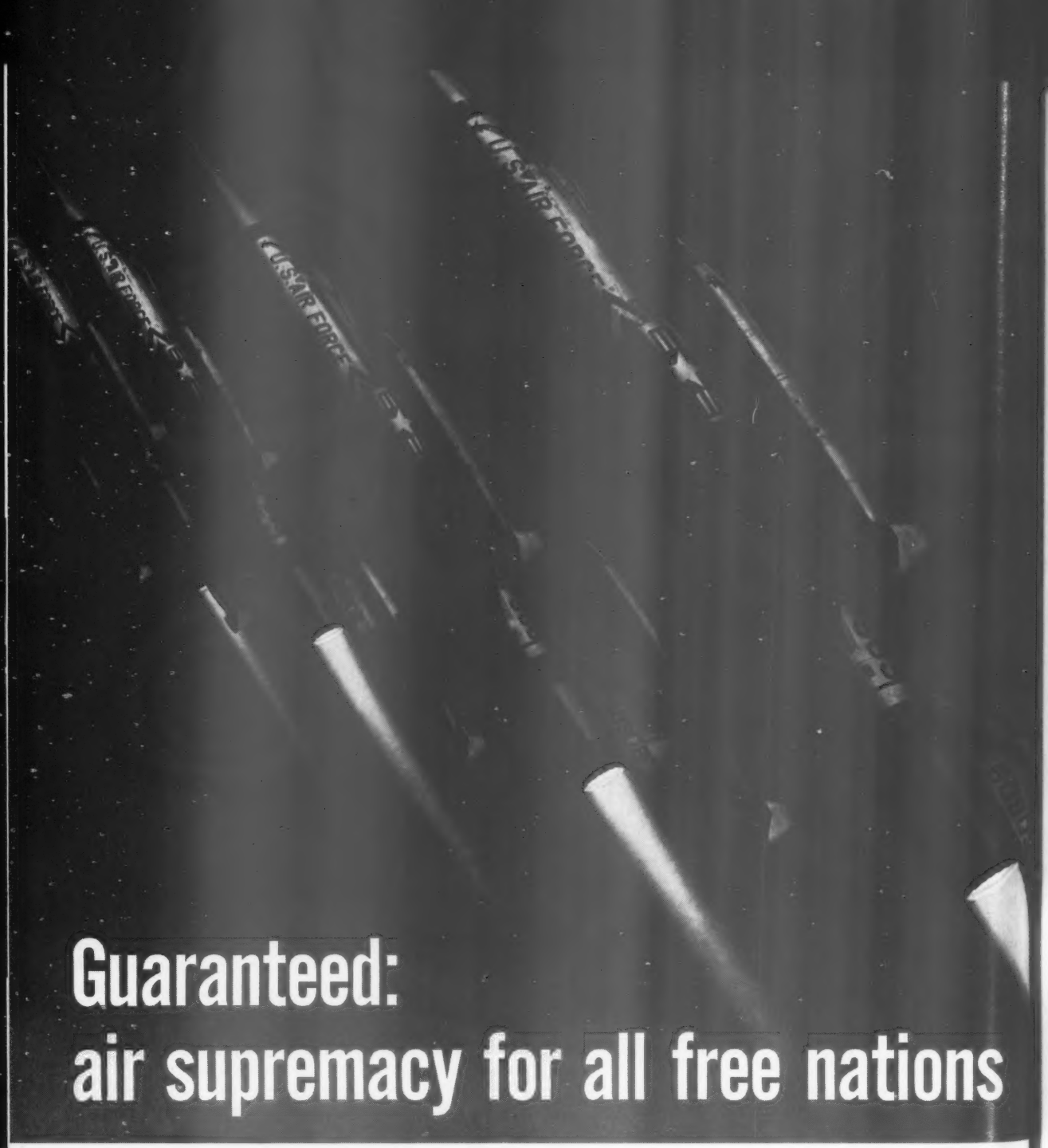
These suspicious old ladies advance their cause under a banner that "the voters want an end to waste, collusion and inefficiency" (who doesn't) even though neither these old women nor the voters they represent know just what that means. (Example of voter apathy to the facts of their own survival: during the recent Berlin crisis, a poll reportedly found that something like 60% of the people who might die defending it didn't even know where Berlin was.)

To quote one of our outstanding contemporary essayists, "there are already more boobs in our society than wise men, or even than scrupulous men, and the machines devised by science are so exact, so productive, and so powerful that a government that is in the hands of boobs will as surely commit national suicide as a 16-year-old kid, blind drunk on a blind curve, doing 80 in a 12-cylinder sedan."

In our free enterprise system, the easiest way to pull top people into government is to pay them enough to make it worth their while. The Pentagon, instead, must rely on their devotion to cause and country. And the bubble brains on Capitol Hill bang away with regularity at the latter, field the first with idealistic prattle and postage stamps for pay checks.

Democracy is the best political philosophy yet conceived by man, they tell us. It is the "best" only because of its unparalleled ability to foster our own individual "life, liberty and the pursuit of happiness." If the men assigned the gravest responsibility in our history—to defend that institution—are first, the best talent democracy has produced and second, so indefensibly susceptible to slathering thievery that they need constant watching, just what of any value are we trying to defend?

Bill Borklund



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LOCKHEED

Washington Background

MORE OF THE SAME is the outlook on Capitol Hill—at least as far as Defense operations are concerned. Hangover arguments from 1959 will still be available for whatever Congress wants to do with them. Military programs banging their heads harder than ever before against the budget ceiling will guarantee it.

IN THE RE-HASH: more manpower cuts, whacks at the shipbuilding program, further shaving of strategic and tactical aircraft procurement, conversation on the weapon system business "except," said one observer, "maybe they'll talk more about the real problems this time."

OLD-NEW WRINKLE will be the already-promised (by Rep. Overton Brooks) inquiry into what the executive branch has really accomplished in the space business, how the National Aeronautics and Space Administration and the Advanced Research Projects Agency fit, or are supposed to fit, together—in essence, who's running the show and where are we headed?

HOPED FOR RESULT: first delineation of what the nation's roles and missions in the Space field should be, possibly even a program timetable. Likeliest result: a great deal of "viewing with alarm," blaming the Republican administration for fouling things up, and another year of public confusion reacting to Russian progress.

BASIC QUESTION BEING PONDERED by Defense: how are these issues going to be exploited by political candidates in big election year 1960? Texture of DOD legislative effort will be dependent on which way the candidates lean—toward the Peace issue or the Preparedness issue.

POLITICALLY, THEY MUST GO TOWARD ONE OR THE OTHER. Purely speculative analysis at the moment indicates Peace will get the nod, mainly because of the Eisenhower-Nixon success in the field (real or imagined) lately, fact that it's like being for God and Mother Love—and the Moms cast a lot of votes.

IF THIS IS THE TREND, Military Assistance program will have a rougher time than ever before (unless hardware is starkly labelled "Made in America"), but there will be no big hardware cuts. (Military "agonizing re-appraisal" to fit Ike's dollar ceiling will already have made enough impression to fit the Peace Idea.) On the other hand: there will be no big funding boosts for hardware, either.

SIDELIGHT: Army Aviation light aircraft procurement, long a monumental struggle, should have a much easier time on the Hill. Aircraft companies, watching the big missile and space contracts dry up, are beginning to lobby hard for the business, whose relatively lower dollar amounts are now more attractive.

DEFENSE SECRETARY McELROY IS EARNING HEADY PRAISE among the employes for his successful effort to focus all the brains in the organization on the whole budget problem. Better coordinated than ever before, this year's "agonizing reappraisal" has been a truly joint analysis, not the more typical scrutiny by each Service of only its particular part of the total picture.

AMONG THE RESULTS: after the to-be-expected disagreements were resolved, one of DOD's best balanced presentations; hitting "very close" to the $41 billion ceiling the first time around; unlikelihood of any hocus pocus this year from any member of the team about agreeing with the budget "with reservations."

ARMY SECRETARY BRUCKER'S "ONE ARMY" drive is beginning to look promising. First reports indicate a willingness, even eagerness, by all elements to bury the hatchet. Savings through joint use of resources are still in the proposal stage but effects on morale have already been tagged "impressive."

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5,500-21,999 lbs.	.85 per lb.	47%
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HOUSE PROBES 'WOC' WORKERS

What began as a minor investigation of possible conflict-of-interest in the case of one man has now been broadened into a thorough-going probe of Pentagon Without Compensation personnel, affecting hundreds.

House Military Government Operations Subcommittee has announced intent to look into nearly 1000 consultants in DOD, besides several Defense managers and scientists who got their jobs under a 1951 law setting up 10 Defense WOC positions.

The investigation began regarding Convair's Dr. C. L. Critchfield, who had been tentatively appointed to replace Roy Johnson as Director of Advanced Research Projects Agency. He was to have held the job WOC, while still drawing his Convair salary.

At this writing, Critchfield has reportedly refused the government job after his prior acceptance, in the face of the controversy his appointment has stirred up.

In launching its probe, the committee apparently feels that DOD is side-stepping a limit written into the WOC law by hiring consultants with private industry salaries. The committee has asked for a full list of such consultants.

Under the WOC law itself, the persons who would be effected—and perhaps lost to the Defense Department—include: Edwin Paxson, assistant Director for Research and Engineering, privately with the RAND Corp.; Dr. Hector Skifter, assistant director for Defense Research and Engineering, and president of the Airborne Instruments Laboratories, a division of Cutler-Hammer, Inc.; John Townsend, also with DDRE and Bell Telephone Laboratories; George P. Sutton, chief ARPA scientist, and a member of Institute of Defense Analyses; and Dr. C. A. Boyd, research director with WSEG, and a member of IDA.

Both the RAND Corp. and IDA are non-profit organizations supported largely by Defense contracts. Pentagon reaction to the hearings is that the investigation will yield few concrete results, and possibly scare away more hard-to-come-by talent for important Defense managerial posts.

FLEET TO DO WORK STUDY

Chief of Naval Operations Arleigh Burke is in the process of assembling two "pilot model" work study teams to see if fleet work patterns and utilization of personnel can be improved.

Adapted from a program begun two and a half years ago and now in full swing in the Royal Navy (and borrowed since by the Royal Air Force, Canadian and Australian Navies), each of the pilot teams will consist of ten men (Commander, Lieutenant Commander, two Lieutenants and six enlisted), are scheduled to be assembled, trained and ready to offer their services to the Fleet by mid-60. One team will be stationed in Norfolk, Va., the other on the West Coast, following a six weeks academic study at the Royal Navy's Work Study Team Training School in Portsmouth, England, and two months field training in American industry under the direction of Proctor and Gamble—at no cost to the government.

Reason Navy is moving slowly into the field: it does not know to what degree it can use the British methods. When Fleet Admiral Lord Louis Mountbatten borrowed the idea from Imperial Chemicals, Limited, (which in turn had borrowed it from American industry), his goal was to do something about operation-strapping custom and tradition which is so deep rooted in the British Navy. Favorably impressed with the approach, accomplishment and the money saved, U.S. Navy won't be addressing itself to the same kind of problems.

Basically, Burke believes the idea is worthwhile, is moving slowly (because of the manpower press) and hopes, if the program is successful at the end of a two year trial, to increase it—possibly to the size of the one in the Royal Navy (thirteen teams operating, two more planned).

Key to how well the idea works is going to be how hard Burke pushes it. One of the big reasons for its success in England has been Mountbatten's placing the program under his direct control, removing the "Inspector General" atmosphere by not sending teams out unless they are asked for by ship commanders, giving ship commanders themselves the credit if improvements result.

MATS POLICIES CRITICIZED

Calling for "a new policy" regarding MATS and the Civil Reserve Air Fleet, Sen. A. S. Mike Monroney (D-Okla.) has charged that the present MATS force is "hopelessly inadequate," and that "should our island bases be bombed, we would be largely grounded.

This he said, is because only 36 of MATS' present aircraft can fly non-stop to Europe. The Oklahoma senator also charged all but 33 of the 400 MATS aircraft are obsolete.

Citing the C-133 as an exception, Monroney said "instead of airlift, we have 28 VIP planes, including three presidential jets. We have 191 obsolete passenger aircraft and 218 C-124's. . . . This "backbone" of our cargo airlift was designed in 1947, first produced in 1948, and production was terminated in 1955."

Monroney pointed out the limited war advantages of improved airlift, and added it would "not require funds in the magnitude that we now spend on several different brands of ICBM missiles."

Monroney's plan, which would be introduced as a bill in the next session of Congress, would "create this airlift by guaranteed loans for airline purchase of modern cargo planes. By guaranteeing 80% of the loan for an 8-10 year payout, I feel some 300 planes of this type and character could be earning their way and paying out their cost through free enterprise by moving both military and civilian cargo on national and international routes. As a *quid pro quo* of such guaranteed loans, the planes would be committed to CRAF, ready to fly anywhere in the world with trained crews on six hours notice."

OFF-SHORE FUNDS MAY BE CUT

Mutual Defense Assistance Program funds for off-shore procurement of aircraft and aircraft parts could be cut as much as $700-800 million in the coming year, because of a growing unfavorable balance of trade against the U.S.

Full implications of the drain on U.S. gold could mean changes in current licensing agreements between American and NATO manufacturers, possible closing of some marginal overseas bases and withdrawl of some U.S. units to this country.

Defense Department now spends some $3-billion overseas, representing about 75% of the unfavorable balance. Over the past few years, the trend has developed from recovery of European economies, and continuing expenditures by U.S. Military and tourists.

From V.I.P. transport

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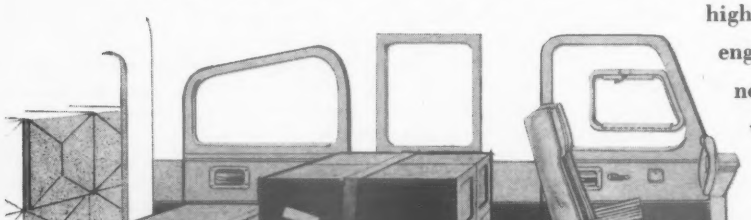
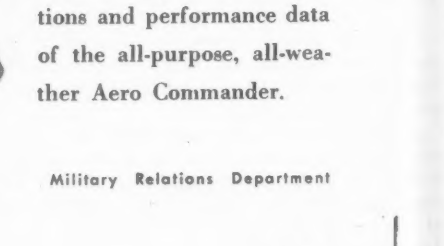


Military Relations Department



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Crystal-Ball Gazing At The Puzzle Palace

Forecasting the future has become one of the most important single exercizes in the Pentagon. Yet, say the men who perform this exercize daily, too little has been written about the crystal-ball gazing environment, the conditions for security and survival in today's "hot" cold war . .

by Bill Borklund

IN a national preoccupation with the box score of today's space race, a public tendency to measure U.S. progress by comparing our own isolated successes or failures with those of the Communists, few people ever step back from all the activity, relate each stride or stumble to every other and attempt to determine where all this activity is taking us.

On the other hand, the military long-range planners, whose decisions today will determine our military posture ten years from now, this correlation work (mixed with a good deal of crystal-ball gazing) is an every-day obligation. The nature of their work was probably best depicted recently by Dr. George L. Haller, head of General Electric's Defense Electronics Division, who said:

"There are two kinds of defense progress: evolutionary and revolutionary. We need evolutionary progress to perfect the weapons systems we are now working on that must be in position, in time and in perfect working condition, to deter aggression. We need revolutionary progress to plan those long-range concepts that will be needed in still-undefined weapons systems to satisfy still-undefined defense needs.

"Both realms must be explored simultaneously. Evolutionary progress of itself cannot be expected to yield revolutionary results. Even the dizzy pace of following one technological advance into the next still only yields progress in an arithmetic progression and it takes a complete breaking away from daily discoveries (and daily operational burdens) to make radical breakthroughs. Automobiles were not achieved, we are told, through further refinements in the horse."

Obviously, however, long-range planning can't be allowed to go so far out over the horizon that it disconnects with reality. One of the planner's most carefully watched pitfalls is the danger of grabbing new technology and running with it, letting their own ideas leapfrog each other until they move so fast "we have disarmament just by never producing anything."

"Historic Failure"

Two years ago, in the Harvard Business Review, Jay Sterling Livingston said, "Our experience with the ICBM substantiates the historic failure of the military services to give adequate emphasis to long-range development of radically new weapons." In hurling his indictment at the military's alleged plodding, nose-to-the-ground approach, his frame of reference was the progress, or lack of it, in new weapons development following World War II.

His recommended solution for "catching up with the Communists" (by giving the development of radically new weapon concepts to an independent civilian agency like the wartime Office of Scientific Research and Development) assumed basically that a civilian agency could ignore and/or end-run the background against which today's planning staff works—basically because "this environment is a product of the Pentagon" alone. Livingston, like many others, say the planners, doesn't understand the problem.

Said one general, "If the public in general and Congress in particular spent a little more time trying to comprehend the big picture, criticism of military efforts might begin to amount more like real strides into the future and less like Monday morning quarterbacking." Public understanding of what's going on in the Pentagon today, in spite of (or maybe because of) tons of news copy, is still meager.

To quote Haller again,

"1. Until the public fully appreciates the vital need for the fullest coordination among military-industry team members, including the best utilization of all available talent in thinking and planning, the effort will be hampered by widespread suspicion of any but the most aloof contact among the members.

"2. Until the electorate and its representatives in Congress fully comprehend the inevitability of long-haul defense programs, we shall be plagued with the inefficiency and uncertainties of stop-and-go defense financing.

"3. Until we create popular awareness of the need for flexibility, decision, and drive in determining the course of defense research and development, we shall be bogged down in a 'prevention of mistakes' morass instead of relying on redress controls.

"4. Until we as citizens fully recognize that defense contracts must be awarded purely on the basis of national defense, we shall dilute our stength, run up the cost, and invite weakness and aggression through clamoring for special considerations—

for the award of contracts on the basis of geographical location, depressed areas, size of contractor, or other political considerations—instead of on the basis of getting the best defense job we can get as inexpensively as possible."

What is this environment really like? Why do the military do like they do?

Today, military planners must consider a host of factors in charting correct courses, factors of secondary or no importance 20 years ago—politics, economics, world sociology and phychology, scientific advances, *ad infinitum*. First, there is a basic communist advantage—they can pick their spots. We are never going to fire the first shot in anger.

Provided gratuitously with an edge, the Soviets can emphasize with impunity an attempt to conquer outer space first (and prove in the meantime a technical capability which most U.S. scientists have been willing to grant them anyway for years.) The U.S. must pour part of its resources into a deterrent capability to meet today's Russian strength, put the rest into a long-range program to be ready for what military planners believe they are most likely to meet tomorrow. Thus, military responsibility is twofold: maintain enough strength to keep our guard up today, do the right kind of intelligent forecasting so that decisions made today will assure that our guard is still up a decade from now.

What is the Job?

Lambasted for not matching or exceeding the Russian successes in outer space, the military have understandably planned with quite a different responsibility in mind—preventing U.S. and free world destruction.

Said one Air Force general, "Provided we can maintain our present deterrent strength for the next ten years or so, we will have forced communists into the only logical battlefield left—outer space. And until man is an effective fighting element in outer space, Russian moon shots and the like pose no real threat to national security." Logically from this, it follows that a big share of military effort in the aerospace field is being concentrated on this human element. Unfortunately, of course, this is handing the Russians plenty of propaganda headlines in the meantime. "So," added the general, "if we want to push them off the front pages, it can be done. But take it out of somebody else's budget."

To the Air Force, charged with the bulk of the responsibility for tomorrow's aerospace war, the key to tomorrow's military operations will be how soon we get man into space, hopefully by the mid-60's. Said one officer, "Today's weapons and those coming tomorrow being what they are, there will be no place else left to fight without destroying the very resources we are trying to protect."

This provides something in the nature of the adversary. There are other elements which military long-range planners must take into account. One is today's relationship with industry.

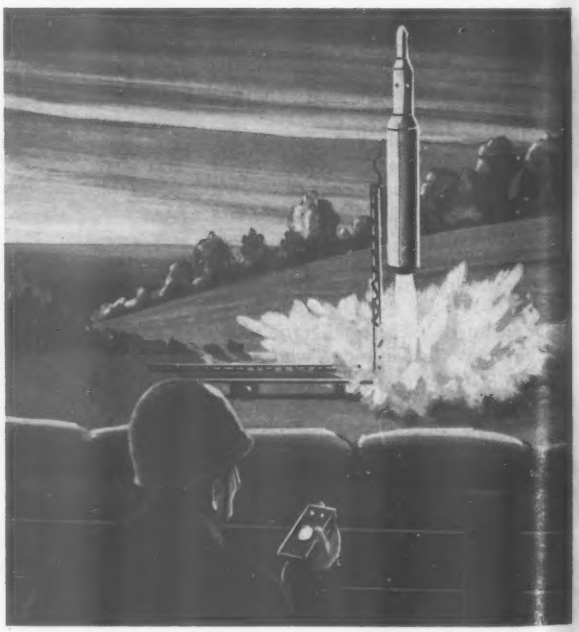
In the last ten years this relationship has changed drastically. Industry is or should be closer to walking hand in hand with the military into the future than ever before. The cold war, in fact, has become a hot war right up to the instant before the trigger is pulled. Unfortunately, say the planners, this attitude is rarely defined, even more rarely promulgated by the people outside the military who have the power of approval for military proposals.

During World War II, the crash program demands on industry and the whole nation were understood and accepted almost without question (in the name of democratic patriotism if you

Case in point: Minuteman . . .

EVEN though only in the midst of development, the Minuteman ICBM is already being praised as a kingpin in the second generation of missiles. Yet, Minuteman has essentially the same mission as today's Atlas or Titan, only cheaper (some one tenth the cost—effectiveness) and far easier to handle (about Atlas length, it will have only half the diameter, about one fourth the weight). Praised in public press reports as almost a deterrent end in itself, it is placed in true perspective by Air Force long-range planners who compare its development to that of the thermonuclear warhead.

The warhead and the missile vehicle are only parts of any system. Each has been affected drastically by the



Midgetman . . .

A pint-sized Minuteman carrying a top payload of something like 600 pounds, Midgetman will be simple in design, even simpler to operate, could feasibly be sprinkled in backyards all over the world. Using solid propellant fuel, pre-set guidance, they could be launched over intercontinental distances by any fairly intelligent man sitting in any fair-sized foxhole.

will) by nearly everyone. Too many of today's roadblocks to military progress in weapons development are the result of trying to squeeze this military crash philosophy under a blanket of peacetime civilian controls and checks. In effect, on the leadtime problem, we are our own worst enemy.

The revolution in technology is another reason long-range planners have a considerable number of problems. Technology, well behind everything else ten years ago in the missile field, is now actually moving faster than the planning, faster even than our ability to produce. Hardware hardly off the drawing board is obsolescent.

Example: While the Air Force has now let go with considerable conversation about hardening of missile sites, they are already viewing it as only part of a combination five to eight years hence, are planning to put part of the Minuteman family on a mobility basis. Their scheme of things to come: "There are at present and in the foreseeable future no defenses against mobility."

And even the announcement that Minuteman would be carried on railroad cars is viewed as only an interim step in this direction (picked after looking at the money-saving possibilities of both river barges, large trucks.) Eventually Air Force sees no reason why most of their next family of missiles can't travel on their own mobile platforms, probably using some advanced version of the air cushion technique (the British have already designed an air

(*continued on page* 39)

After the second generation, a third family of missiles

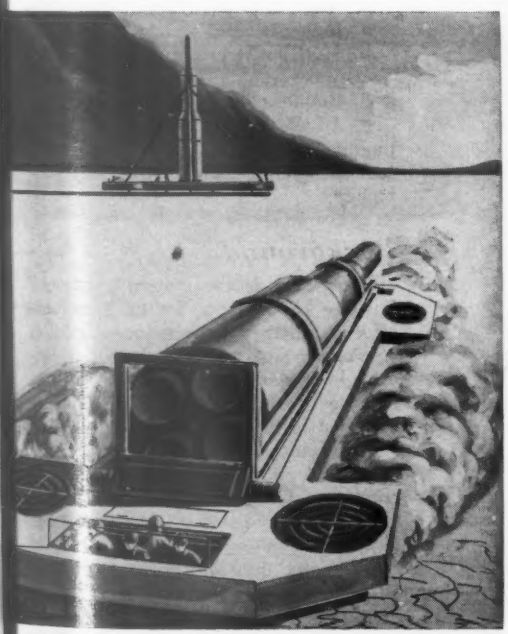
technological revolution. Originally a big, cumbersome thing that would hardly fit in an airplane, atomic bombs reportedly can now be built as small as a baseball. To a lesser extent, the same thing is true of the hydrogen bomb.

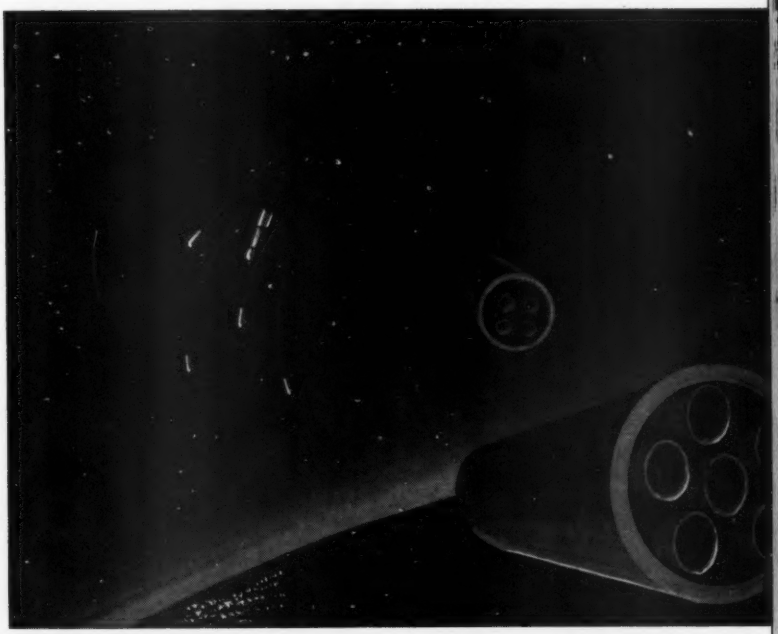
Working on missiles themselves, scientists and engineers have solved the nose cone headache, re-entry and guidance problems, the effective coupling of range with payload and, at least on paper, the booster roadblock.

"Today," said one general in the missile field, "from a technological standpoint the possibilities are almost limitless. About all that really limits us now is the pocketbook."

With technical roadblocks out of the way (at least theoretically), if the pattern goes as it has for warheads—and it probably will—it becomes rather obvious to informed observers that future forecasters are planning family variations on Minuteman. Among the concepts being discussed as possible projects to follow Minuteman—which itself is several years from operational usefulness—the following examples give an idea of the pertinent possibilities with which Air Force planners are working.

The names used here are dreamed up by Air Force people for their own coordinating use only. The Secretary of Defense alone handles formal christenings if and when projects move out of the speculation stage.





Mightyman . . .

A super-Titan-category missile carrying up to about 7000 pounds of warhead, Mightyman's propulsion would come from storable liquid fuel (since solid fuel capability seems limited in the higher weights and ranges). Travelling, like Minuteman, on its own air-cushion-supported launch platform, it will be almost impossible to defend against.

Superman . . .

A huge, super-sized missile, Superman may carry either one warhead (of anywhere from 20 to 100 megatons of destruction) or several smaller-sized bombs which, like shrapnel, would separate from the parent missile, some distance from the target, splatter all over the target area. Said one general pointedly, "We will probably want a few of these."

This is the first in a three-part series evaluating the system approach to Defense contracting to include a Background and History, the Pros and Cons, and Conclusions and Recommendations . . .

by Phillip R. Wheller/ *Navy Bureau of Weapons*

How Good is the Weapon System Approach?

Weapon System Evolution . . .

Mankind's earliest weapons, the fallen bough, a rock or a stone axe, have been transformed by time and a burgeoning accumulation of knowledge, techniques, processes, skills and experiments into complex and intricate devices almost beyond the fantasies of even our recent ancestors.

Today's devices can leap high into the heavens and dive deep in the oceans, go to far places with incredible speed and uncanny accuracy. They can unleash destructive forces generated by the basic energy processes of the universe, energy whose by-products threaten to extinguish all life on this planet if we insist on using these devices. We are rushing to the threshold of "push button" warfare—man's key to either world peace or self extinction.

Goaded by two world wars in one generation a "police action" just as devastating, a wholesale application of research and the scientific method, the human race has not only found a way to unleash the energy of the cosmos but also devised inumerable kinds and varieties of destructive weapons, defenses and counter weapons.

Today's weapons combine a huge heritage of accumulated knowledge, not from one field but from many fields of science and engineering. These combinations end up as amazing systems taking thousands of scientists and engineers more than a decade to devise, build, test, redesign, rebuild, retest, and finally to complete a single weapon.

This combination of many things to make up a single device has led to the use of the word "system" or "weapon system" as a general term, has launched, too, a heated Defense debate on the merits and problems of using "weapon system" concept in defense contracting.

THE system approach to defense contracting continues to be a controversial item. It is promoted by big business, fought by small business, and used by cognizant defense groups as an "easy out."

It has been the basis of major reorganizations in DOD activities. It is the subject directly or indirectly of various bills in Congress.

What factors led to the widespread interest in the system approach, what are the pros and cons, and is the system approach really the best answer for the development of today's large complex weapons?

The system approach to defense contracting—is it good or bad—and from whose standpoint?

More specifically, is the system approach necessary because of:

a. Limitations on the numbers and quality of Government personnel which can be hired.

b. Need for a single central authority to direct design and development effort of all participating contractors.

c. The problem of coordinating the design of related equipment being developed and produced at different places.

d. The need for faster decisions.

Further, does the system approach—

a. Increase costs?

b. Hurt small business?

c. Make standardization difficult?

d. Reduce plant dispersal?

e. Adversely affect the national mobilization potential?

f. Adequately protect the taxpayers' money?

Background

First what is the system approach? For the time being, let us limit ourselves primarily to the consideration of aircraft and missile, where this approach started, General Dave Baker, in a lecture at the Industrial College of the Armed Forces, said:

"A weapons system consists of the air vehicle, together with all airborne and ground based supporting facilities required to make it a unit of striking power.

Air Force Regulation 70-9 on Procurement and Contracting further amplifies this as follows:

. . . "The complete weapon system includes all related equipment, materials, services, and personnel required solely for the operation of the air vehicle or other major element of the system, so that the instrument of combat becomes a self-sufficient unit of striking power in its intended environment."

It should be kept in mind that the term *System* is applied to many things.

It may mean a control system within a missile, the missile itself, or an over-all weapon system.

The degree to which the system approach is applied to contracting varies. In the *all-out approach*, a single "prime" contractor gets full responsibility essentially for development and production of a "weapon system." In this case, the one prime contractor is the only one *directly responsible to the Government*, and the only one with whom the Government deals directly.

This company then lets subcontracts as needed for major portions of the development—seldom or never does a single company have the necessary engineering personnel and background experience to handle all of the varied problems and items of equipment.

In the *partial approach*, the responsibility of the prime contractor is more limited. He may have responsibility for the coordination of the over-all system, and for the development and production of only a portion of it. With this approach, the Government *lets direct contracts* to each of the major suppliers, rather than letting them be subcontractors to the prime contractor.

Thus we are considering—*Is it advantageous for the Government to deal only with a single prime contractor, or is it better that the Government let contracts directly to each of the major activities involved in the program?*

Expanding R&D

Starting in the mid-1930's, the military services in this country began expanding research and development. World War II greatly accelerated this expansion. The airplane achieved status and the aircraft carrier replaced the battleship as the backbone of the fleet. Manual optical sights evolved into automatic radar tracking systems. Ordnance generally grew in complexity.

Some expansion in the technical personnel in Government responsible for planning, directing and prosecuting this development work took place. Some new Government laboratories and test facilities were established. However, this increase was insufficient to take care of the added work load.

It became necessary to place more and more of the development work in the hands of outside contractors. A relatively few people in the Defense activities could administer the contracts whereas, if any of the design work were done by Defense personnel, it greatly reduced the total work which could be administered.

Prior to and during World War II, the military agencies directly handled much of the design, development and procurement of many ordnance items and components of aircraft. These included such things as engines, instruments, gun mounts, etc. These items were then made more or less standard, directly procured and made available to the aircraft designers and manufacturers as Government Furnished Equipment (GFE).

As speeds increased and wind tunnels smoothed and sleeked our aircraft, items that were once standard often fitted into the new designs like a 1959 Cadillac in an old model-T garage. In many cases, they needed modification or complete redesign. If used as furnished, they provided far less than an optimum installation.

Coordination Problems

In addition the growing complexity required dozens of scattered activities and specialized groups to work simultaneously on the components, subsystems and systems, which, when brought together, made up the whole. While the necessary coordination of such work was once satisfactorily handled by the Military technical agencies, a rash of problems began to occur.

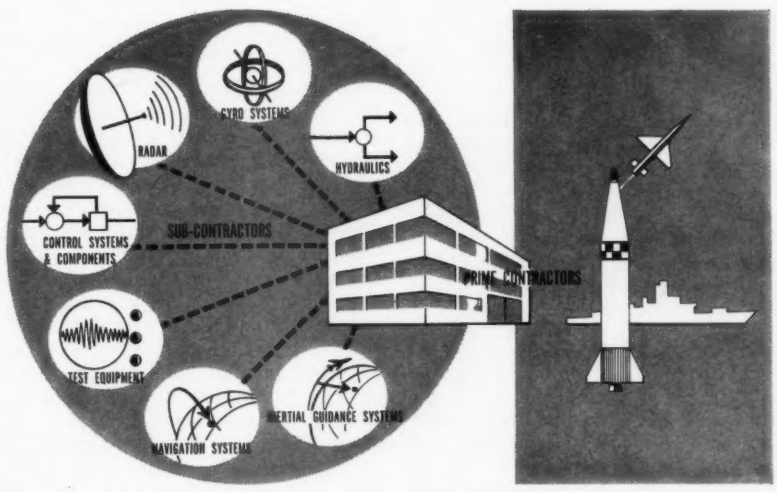
In the words of one report "The present procedure of assigning development and procurement responsibility on the basis of individual equipments instead of a system, results in a coordination problem which has outrun the ability of the services and industry to handle." The simple and easy solution appeared to be to make the airplane designer totally responsible for the aircraft and its gear.

Other factors encouraged the use of the system approach. The shortage of engineers in Government in relation to the great expansion in research and development effort made it increasingly difficult to follow the work in any detail. Also as pointed out in an address on the subject, as personnel become relatively more scarce, the purely administrative duties consumed a larger share of their time. This led to the often-heard complaint, "You don't need an engineer on this job."

To further aggravate the shortage, Government operations have many restrictions and problems not imposed upon industry. Tax money must be impartially used. Each potential contractor must have the same consideration. Small business activities must be given every opportunity to share in Government contracts.

Records suitable for Congressional investigations must be maintained. Changing laws, directives, statutes, orders and instructions must be complied with. Every action must be defendable against the occasional unscrupulous senator or congressman who insists that his constituent should have gotten a contract. Cases are known where congressmen have resorted to investigation of the personal lives and finances of engineers handling projects which went to the "wrong" contractor.

"Dual staffing," the use of both civilian and military personnel in somewhat parallel positions, with the military normally in charge, has been the subject of studies both inside and outside of the Government. One of the factors often referred to is the basic training of most military personnel to command military field operations and



Above is shown the general scheme of the Weapon System contracting approach. The Government has a contract with the prime contractor only. The prime contractor then lets sub contracts to others for several of the major items to be developed or supplied. Each of these reports to the prime contractor who is responsible for the overall development or for the assembly and checkout of the item if production is involved.

the logical growth of the idea . . .

not research or engineering projects.

The military organizations have their share of the "Don't rock the boat" adherents. Problems similar to those of State Department personnel in Viet Nam can be found in the Department of Defense, although not so widespread. Lack of background on technical problems sometimes helps to make military personnel more than willing to shed technical responsibility.

The present strong focus on the budgeting, bookkeeping and accounting procedures has enabled groups, who might normally be expected to handle this work, to "unload" much detail on technical personnel, many of whom feel they have become involved in a "numbers game." Thus, mechanized records rather than being an aid to engineers, in some cases at least, appear to be a considerable burden. Some engineers feel that they are working for the machines rather than that the machines are working for them.

While Parkinson's Law of expanding personnel applies to Government as well as industry, Government personnel is limited by Congress. Absolute ceilings are placed on departments. The breakdown from this reaches down to the smallest group. A group may hire typists or engineers, but the total employed must not exceed a fixed number. Consequently, many engineers are doing their own filing and clerical jobs.

In some cases as few as six people (including one typist) are responsible for the technical (R&D) aspects of a missile development on which thirty million dollars a year is being spent.

During and for several years after World War II, the organization of military activities was based upon a subject or item break-down. For instance in the Bureau of Ordnance, there were branches for Fuzes, Explosives and Warheads, Rocket Propulsion, Fire Control, Launchers, Torpedos and later Guided Missiles.

Why Specialization?

Each branch handled all of the items of its specialty. The Fire Control, Launcher, or other experience and know-how was grouped. The experience and background on one fuze, was directly available on the design and development of another. The maximum use was made of specialty knowledge. Varying workloads on projects were spread and smoothed out.

But the *System Approach* beckoned. It attracted adherents and fans like any other new and dramatic idea in the public eye. It was not sufficient to use it for contracting. Organizations must be built around it—both in industry and Government.

Companies such as Glenn L. Martin put out brochures proclaiming the new management technique—System Management. Everywhere "System" was the watch word.

In the Bureau of Ordnance, early in 1956, the Research and Development Division was completely reorganized to a system type of functioning organization. Three types of weapon systems were recognized—surface launched, air launched, and underwater launched.

The old subject-type branches were split three ways. Where previously one

Atlas is only one example of what the weapons system technique can accomplish.

fuze group served the Bureau, now there were three groups, each in its own separate corner, but each one of the three System Offices was responsible for a complete weapons system.

Prior to the system type organization, means did exist to coordinate complex and far flung projects. They included specifications, coordination drawings, design data books, the automatic distribution of correspondence, drawings and other information by all activities in a program to each other activity having an interest. To work, the use of these must be planned and made effective early in a program.

The coordination drawings are a *key* item. They establish the available space, shape, mating dimensions, and other critical information which ties together the hardware being developed at different places. The coordination drawings can be made the responsibility of the principal contractor. Or they can be prepared by a "service" contractor acting as an extension of the Government activity.

For best results there must be a desire of contractors to cooperate, to reach optimum compromises. And the cognizant Government technical activity must be available to arbitrate or make decisions if team work and cooperation does not bring agreement.

Where has it Worked?

At least three major programs have used this method of coordination with good results and few problems of fit when items come together. These projects involved several activities inside Government as well as a score or more of contractors.

These projects were run without line authority, i.e. without a direct chain of command to order or dictate. But, the seed of system concept grew and flourished. It developed powerful support from the larger contractors who hoped to secure system contracts with the larger dollar volume and greater degree of control.

The Air Force swept wing B-57 SAC bomber contract at Convair was one of the first large scale system contracts.

The Army gave Sperry-Rand the "Sky Sweeper" a combination of radars, computers and guns. Starting in 1949, Sperry soon had twenty major subcontractors and delivered the first unit in about a year and a half.

A second prime then went to the AC Spark Plug Division of General Motors, with Sperry providing technical assistance. Some 200,000 drawings were involved. Deliveries started in 1953 and provided the Army with an agreeable indoctrination into the system approach.

In the Navy, after a strongly worded recommendation from an industry study committee, the Office of Naval Material issued a directive making the system approach mandatory for use in the development and procurement of Electronic equipment.

These actions brought vigorous protests from small business groups. These in turn brought strong statements from the military telling primes to "stay in their own back yards." But a consistent steady pressure has been maintained by the larger companies promoting the systems approach. And a "prime" contract for a "Systems development and production" remains the goal of every sizeable defense contractor.

(Next month we will present some of the pros and cons of the system approach, together with industry, Congressional, and Defense personnel comment.)

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Ninth in a series
on government-contractor relationships

by David Fromson
Director
Greer Hydraulics, Inc.

How BIG Isn't Small?

One of the thorniest problems facing Government procurement is that of determining which firms qualify for small business benefits. Why this is so, and what can be done about it are discussed by author Fromson.

RECENT studies show that "the number of businesses currently operating in the United States is well over 4 million—a record level . . . the vast majority of them consist of small enterprises. Roughly ¾ of all concerns have fewer than four employees; and over 99.8% have fewer than 500—the usual delineation of 'small business.' At the other extreme, the top 1% of the firms furnish roughly ⅜ of all jobs."

These statistics dramatically reflect the vital role of so-called "small business" in the American economy and the important function it performs as a basic element within the defense and mobilization industrial base. Under the "set aside program," a proportion of military procurement is placed with "small business"—Defense Department estimates that about 30% of all defense procurement can be purchased through small business firms. Congress particularly has been sensitive and sympathetic to the needs of the small business man. It was not unexpected, therefore, that at the last session, Congress renewed the Small Business Act and established the Small Business Administration as a permanent Federal Agency.

It has been settled that Small Business Administration is the final arbiter on whether a firm is "small business," and its decision is binding on the various Governmental agencies, including Department of Defense. It is for this reason that it becomes most important to find whether the rules and criteria in this area are adequate and correct.

Congressional policy on "small business" is clear and unqualified. It provides that, "It is the declared policy of the Congress that the Government should aid, counsel, assist and protect, insofar as is possible, the interests of small business concerns in order to preserve free competitive enterprise, to insure that a fair proportion of the total purchases and contracts for property and services for the Government (including but not limited to contracts for maintenance, repair, and construction) be placed with small business enterprises, to insure that a fair proportion of the total sales of Government property be made to such enterprises, and to maintain and strengthen the over-all economy of the Nation."

What the Law Says

The Act further provides, "A small business concern shall be deemed to be one which is independently owned and operated and which is not dominant in its field of operation." Besides the foregoing, the Administrator, in making detailed definition, may use these criteria, among others:

"Number of Employees and Dollar Volume of Business: Where the number of employees is used as one of the criteria in making such definition, for any of the purposes of this Act, the maximum number of employees which a small business concern may have under the definition shall vary from industry to industry to the extent necessary to reflect differing characteristics of such industries and to take proper account of other relevant factors."

Small Business Administration, from the first, has thus been given responsibility for defining small business, and for establishing yardsticks to determine whether a firm is dominant in its field of operation. As a practical expedient, Small Business Administration has one set of standards for its procurement program and an entirely different set for lending activities. In this article, primary concern is with the problem of defining small business for procurement generally, and in particular, to see if Small Business Administration has erred in its administrative determinations concerning size standards.

Before June 1, 1957, eligibility for Small Business Administration procurement programming was limited in blanket fashion to firms of 500 or less employees. This proved rigid and inadequate for it failed to account for sharp variances from one industry to another. On June 1, 1957, Small Business Administration declared its definition of small business for Government procurement and said that such a firm would be "A concern that (1) is not dominant in its field of operation and with its affiliates, employs fewer than 500 employees, or (2) is certified as a small business concern by Small Business Administration." The regulation then goes on to define the calendar period for computing "number of employees."

If a firm has 500 employees or less, and is not dominant in its field, it may represent such facts and qualify for benefits of the Small Business Act including the Government's set aside program. This is "status through representation" and is done by checking the proper box on the Government request

for proposal or invitation to bid.

Where a firm is over 500 employees, it may seek small business status through certification. In such case, it applies for a small business certificate to the regional or branch office of Small Business Administration nearest to its principal place of business. In applying, it certifies that, with its affiliates, it is not dominant in its industry.

It should be well noted that there is no apparent ceiling on the number, where small business status is sought through certification.

To aid the Administrator in specific problem situations, there is a Size Standards Committee within the Small Business Administration. This group passes on borderline situations covering affiliated concerns, size, and the complex matter of dominance in the field of operation. There are no published yardsticks to guide industry on how Small Business Administration makes these determinations—little difficulty has apparently arisen in determining if a company has "affiliations." But in determining "size" and "dominance," industry must be dependent completely on administrative determinations, with the problem compounded by wide discretionary powers given to the local SBA regional managers throughout the country.

In both situations—achieving small business status through "representation" and "certification"—there is the common rule that the firm be "not dominant in its field of operation." This regulation provides "a concern is not dominant in its field of operation when it does not exercise a controlling or major influence in an area of business activity. In determining whether dominance exists, consideration shall be given to all appropriate factors, including volume of business, number of employees, financial resources, competitive status or position, ownership or control of materials, processes, patents and license requirements, sales territory and business activity." These, it is respectfully submitted, are norms so difficult to ascertain with any uniformity that it is, as a practical matter, impossible to fairly administer the section.

Clarification Needed

Congress did not, in floor debate or committee report, clarify what it meant to encompass in the concept of "dominance." Without such a guideline, we can only look to the general purposes for which Small Business Administration was formed—and in examining this, there is a predominant theme—to deny the benefits of the Act to any firm where such benefits might create a monopoly or hurt competition. If a given firm would, because of its position within industry, lessen competition if granted small business status, it should be denied such status. To protect small business, competition must remain full and free and according to the statute, "Opportunities for the expression and growth of personal initiative and individual judgment must be assured . . .".

As we noted, Small Business Administration has not yet, to the best of my knowledge, published standards pertinent to this phase. Government contractors are thus unable to determine whether certain competitors are by Small Business Administration rules dominant in their industry.

It strongly recommends that fixed criteria be set in accord with industry classification as declared by census and regularly published so that this requirement may prove more meaningful. Should it be impossible to set these criteria, the requirements of "dominance" should be eliminated.

A more serious problem concerns the Small Business Administration "employment size standards." Reverting to the lending program of Small Business Administration, we find that SBA has established schedules setting forth census classification codes for designated industries (and particular products) and has pre-determined the number of employees which will disqualify such firm as small business. Similar schedules should be set for the procurement program.

This overall problem is inherently most difficult. I am sure SBA officials are doing the best they can to find the necessary solutions. Its Inter-Agency Task Force has rendered yeoman service in this area. It is true that actual operating conditions prove the conclusion held by many that it is not possible to classify firms serving the Government, either by product or industry. First, certain products the Government buys are unique and not subject to classification. Many bidders produce a variety of articles so, if commodity classification were used, the same firm might be small business for one product and big business for another. The Attorney General of the United States, in one of his annual reports to the Congress, stated "No matter how firms are classified, abandoning the rigid 500 employee rule poses problems . . . Classification of manufacturers by commodities, products or even by industries, may be attended in practice by so large a number of individual determinations to be made in doubtful cases that the facilities of both a procurement agency and the SBA will be unable to handle the load."

The point I wish to make is that it would be better to have no criteria than criteria which are ambiguous and unenforceable. When a Government contractor states that he believes he is "small business," he has no way to tell whether he is dominant. He only can state that, with all his affiliated companies, he employs less than 500 persons. Without clarifying data from the SBA, legislation is needed to amend the current rule so the contractor need not guess on his position in the industry.

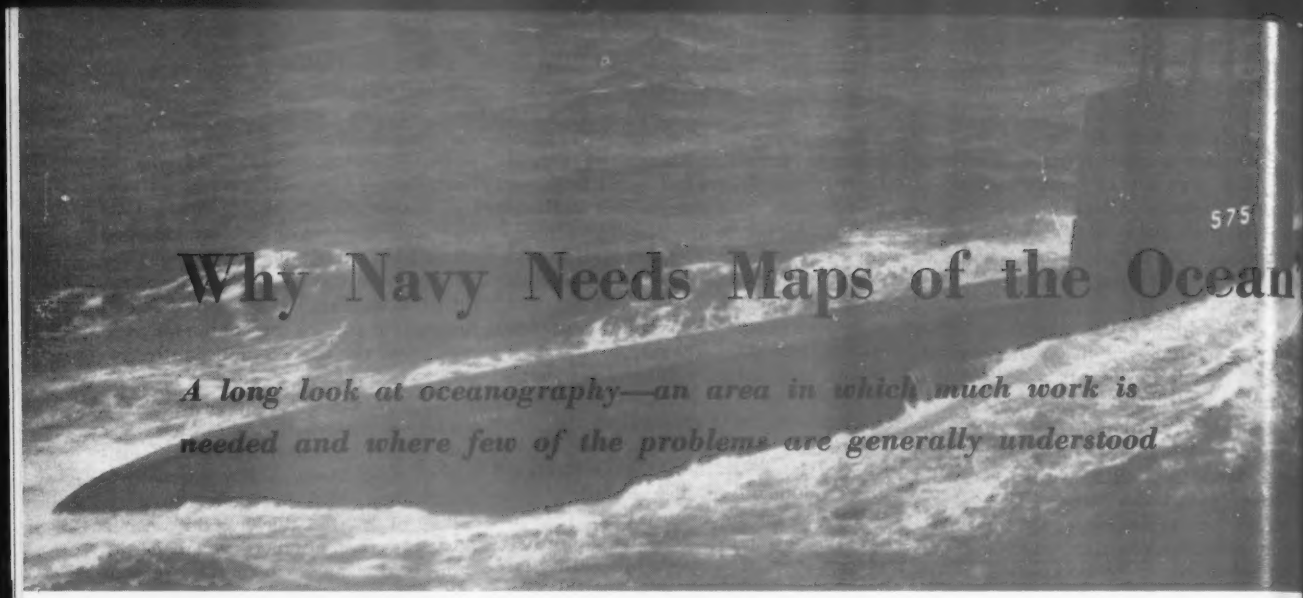
We now come to the heart of the matter—cases where a firm has over 500 employees and wants to be certified as small business. For internal administration, SBA has generally set a ceiling of 1000 employees. But despite this, there are instances where certificates were issued where total personnel were over 1,000.

Headaches Compounded

The problem becomes more complicated when we use the following example. X Corporation with 5000 employees, manufacturing turbines and net worth of $10,000,000, decides to diversify and forms a wholly-owned subsidiary four blocks from its major plant, to manufacture Army uniforms and employing 90 people. Under the current thinking at SBA, this subsidiary—concededly not dominant in the uniform business—could achieve small business status through certification, since this subsidiary, with affiliates, has over 500 personnel.

It is grossly unfair to the bonafide small business firm engaged in the uniform business to allow this type of competition. Unquestionably, the vast resources of X Corporation will support much of the overhead and burdens of its small subsidiary. Furthermore, if the subsidiary were to manufacture the same product as the parent or an item related to that product, the same result would occur although there is some confusion on this point. If the subsidiary is housed in the same plant, there is also a problem of whether such firm could be considered "small business."

In conclusion, it is apparent that there is a need for real clarification and possibly legislation on this subject generally and in particular, on provisions regarding size determinations for small business firms. Should it be impractical to devise such implementation, I would recommend that for procurement, the ceiling of 500 employees be imposed (including employees of affiliates) but excluding any question of dominance within the industry or field of operation.



Why Navy Needs Maps of the Ocean Floo

A long look at oceanography—an area in which much work is needed and where few of the problems are generally understood

by A

FOR A nation whose survival could depend on control of the seas, it is alarming that we should actually know more about the surface of the moon than we know about the deep-sea floor.

A major assault against the United States undoubtedly would come from the seas, not space. Thus this country must know more about the seas than the enemy knows. But the fact is that the Soviets are making a more strenuous effort to unlock the secret of the seas than is the United States.

The Russians are conducting a crash program of oceanographic research, while only a handful of U.S. scientists are even concerned about underseas studies. Only $8 million has been authorized by Congress for studying the oceans that cover 72 percent of the earth. Meanwhile, the U.S. is spending billions of dollars for political farm subsidies—to cite only one non-essential item in the national budget.

The importance of oceanographic research lies in that understanding the secrets of the sea is necessary to successful undersea warfare. Detecting and identifying submarines, as well as killing the enemy craft, depends upon knowing the properties of the sea—the effect of water on sound transmission and undersea explosions. Oceanography teaches submariners how to use the seas to conceal themselves, and teaches anti-submarine warfare forces how to seek their quarry.

As Sen. Warren Magnuson (D-Wash.) pointed out last year, the United States—with over 12,000 miles of coastline—is "wide open to as many Pearl Harbors and Nagasakis as there are missile firing Russian submarines."

"From the point of view of military operations," the Congressional Committee on Oceanography said last year, "there is no comparison between the urgencies of the problems of the oceans and those of outer space."

Adm. Arleigh A. Burke, Chief of Naval Operations, recently seconded a Navy report that warned: "There has been no effort to improve research ships in this country in the last 15 years. If we are to get ahead of the Russian submarine menace and stay there, a 10-year program must be implemented."

The Russian Challenge

Navy has clearly stated the situation: "Submarines cannot function properly in the strategic areas without adequate knowledge of currents, bottom topography, sound velocities, ocean temperatures and weather. We are now ill-equipped to provide that knowledge because we lack ships capable of working in the northeast Atlantic, the north Pacific and the Indian Ocean."

American oceanographic research has starved while the Soviet Union has lavished money on research ships, scientists and equipment.

The Soviet scientific fleet includes the following vessels: The 12,000 ton ice breakers *Ob* and *Lena;* the 15,000 ton icebreaker *Moskva;* the 6,000 research vessel *Mikhail Lomonosov;* the 5,546 ton *Vityaz;* the 5,000 ton *Pole;* the 3,000 ton *Savastapol* and *Okean;* the 1,500 ton *Diamond* and *Equator.* The Soviets soon will have ready the 6,000 ton atomic icebreaker and research vessel *Lenin.*

The Mikhail Lomonosov, constructed in 1957 as a research ship, is of greater tonnage by itself than all U.S. oceanographic vessels combined.

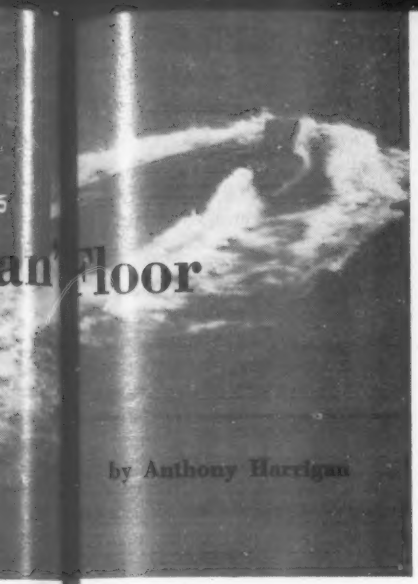
The government and privately owned oceanographic research fleet available in the U.S. totals 14. One of these is the 1,800 ton *Chain,* a converted submarine rescue ship. Next largest is the 533 ton *Vema.* The majority are of less than 200 tons, some are almost 30 years old. These are the ships that are supposed to match the oceanographic research fleet of the Soviet Union.

A vast expansion of oceanographic research is needed if U.S. forces are to be assured top effective operation of our submarine force and maximum defense against the Soviet undersea menace.

What might a massive effort in undersea research develop to aid naval commanders?

One discovery with practical application was the undersea equivalent of the atmospheric jet stream. Named the Cromwell Current after Townsend Cromwell who discovered it in 1952, this is an Equatorial current in the Pacific Ocean. Two hundred and fifty miles wide, 3,500 miles long and 300 feet below the surface, the Cromwell Current flows eastward at three knots. For commanders who want to move at top speed, the current has an obvious application. Oceanographers also have learned that a ship following the axis of the Gulf Stream can make several additional knots.

U.S. knowledge of the oceans is tragically inadequate. Even roughly adequate maps exist for no more than 2 per cent of the total ocean floor. Mountain ranges are hidden thousands of feet below the surface of the ocean. So well are they concealed that when a U.S. nuclear submarine journeyed to



...an Floor

by Anthony Harrigan

the North Pole she discovered a tremendous mountain range extending all the way to the pole. No one knew they existed. Such valleys or mountains are full of sound ducts, currents and inversions. They provide thousands of hiding places for submarine skippers who know their special properties.

One of the most important oceanographic tasks is undersea surveying. National Academy of Sciences has estimated that the most essential surveys could be completed in 10 years. The task would require 15 to 30 deep sea vessels. The cost would be from $20- to $30-million a year.

Oceanographic surveys would represent only the beginning of a major research program. The fundamental properties of the ocean waters and ocean bottom must be studied. For example, we need accurate information on magnetic variations on the ocean floor. Because the magnetic anomaly detector is one basic ASW tool, unit commanders need to know which variations are caused by mineral deposits and which by submarines.

Oceanography must receive major emphasis because undersea warfare moves to deeper levels each year. Nuclear-powered submarines will mean that submarines will be deep-running. Our own submarine builders are turning away from emphasis on speed to stress deep-diving abilities. Experiments with the bathysphere designed by Auguste Piccard have gone 20,000 feet below the surface. Navy's interest in deep operations is indicated by a contract with Reynolds Metals Co. for the battery-powered *Aluminaut*. This craft, taking her name from the six-inch aluminum plates that form her pressure hull, will be able to go 18,000 feet under the sea. This submarine, to be launched in December 1960, will be turned over to Navy for scientific ocean studies. Designers believe the 48-foot submarine will be able to remain submerged 36 hours and cruise 100 miles at depths 15 to 20 times greater than modern submarines.

The possibility of operational craft at such depths indicates the revolutionary character of submariners' thinking. They recognize that deep water is a submarine's best friend.

Another experimental craft is the World War submarine *Baya*, with Submarine Flotilla 1 at San Diego, California. The *Baya* is engaged in research and development work for the Navy Electronics Laboratory at San Diego. This research laboratory is in the forefront of Navy's drive to extend sonar capabilities. Cdr. Lyle D. Oder, commanding the *Baya*, says his submarine's mission is to explore all aspects of underwater sound. The *Baya* has been fitted with a new 23-foot bow section, and two 42-foot booms have been added to the sides of the *Baya's* hull. These revolving booms are sonar antennae.

Sound-ranging detection devices are the heart of current anti-submarine warfare. Thorough understanding of water's effect on sound is imperative. Changes in water temperature distort sound as water does light. Sound is bounced back, and sonar readings become inaccurate. Submarine commanders can seek thermal layers where they can lurk undetected by sonar on sub-hunting surface units.

For effective mine sweeping operations, naval commanders need to know the magnetic properties of the ocean bottom, acoustical conditions in varying sea states, and information on currents, water turbulence and water pressures affecting mines.

What Will Maps Do?

The task facing U.S. oceanographers is to gain detailed understanding of the fixed properties of every ocean area where U.S. warships expect to operate. A hunter-killer force, steaming toward a particular destination, should have all of the scientific facts on bottom conditions, temperatures, salinity, etc., in that area. Also, a system of undersea reporting should be established, just as worldwide weather reporting has been set up. Weather conditions under the seas are as important to sub-hunters as normal weather conditions are to aviators. Deteriorated undersea weather can make much existing sonar deaf. Helicopters cannot trail sonar balls in high seas. Improved understanding of waves might lead to more effective sonar buoys. Undersea weather can affect homing torpedoes, anti-submarine rockets and nuclear weapons used to kill submarines.

Some ingenious devices have been developed to help provide continuous undersea weather reports for naval commanders. One is the so-called Swallow buoy, named after British oceanographer John C. Swallow. This buoy sinks until it reaches a level where the seawater has precisely the same density as the buoy. The Swallow buoy drifts with deep water, broadcasting signals that can be heard on surface ships. This type of buoy can be anchored or dropped at sea and queried by electronic signal on water condition data.

Among undersea instruments that should be experimented with to greater degree are undersea noise-makers. A possible way to disrupt actions of a Soviet submarine force would be to fill transit and coastal defense zones (where missile firing may take place) with electronic noise that prevents subs from finding their targets.

Noise to distort sonar readings is comparable with the use of radio and radar jamming. Such electronic counter measures offer a fruitful field for scientific investigation. Truly effective noise-makers might force submarines to surface, exposing themselves to surface radar on U.S. sub-hunters. A clear radar report would enable sub-hunters to move in on short order.

The Woods Hole Oceanographic Laboratory has worked on a noise-maker called the Imp—for impulse generator. These Imps use hydraulic pressure to create undersea shock waves as strong as those from a large block of TNT. The Imp can be suspended under a ship, sending waves long distances under water. Oceanographer Columbus Iselin has said: "We know that sound pushed out by explosives can go, at some levels, for thousands of miles. There isn't an ocean in the world big enough to lose the sound of a pistol fired at the right depth.

"If Mr. Eisenhower could say to Khrushchev, 'We can see every one of your submarines in the seas around us,' we would be in a far better cold war position today."

To acquire the information it needs regarding the oceans to get the Soviet submarine threat under control, the United States must adequately support oceanographic research. And this same knowledge is no less important if our own submarines and surface craft are going to operate at full effectiveness throughout the oceans of the world. The stake in the struggle for knowledge of the seas can be summed up in one word: survival.

Pentagon Profile

This Month:

Lt. Gen. Truman H. Landon, USAF

Deputy Chief of Staff/Personnel

PERSONNEL training in the Air Force (and the other Services for that matter) used to be a reasonably simple job. Particularly in the officer cadre, holding a man at lieutenant rank for from 10 to 17 years allowed plenty of time for personnel rotation through all squadron specialties.

Then too, most Air Corps men were primarily aircraft drivers, in one form or another. Real specialization, highly advanced, pertained only to a few, such as doctors, lawyers, quartermasters.

Today, finding and training the men to do the work has become far tougher. The technological revolution is tending to pull military manpower resources in two opposing directions. On one hand, a high degree of specialization, particularly among officers, has become more and more necessary. Still, the requirement for men with broad experience to fill the top jobs remains.

How to keep this delicate scale in balance, and constantly improve Air Force personnel calibre at the same time, is the responsibility of an organization headed by Deputy Chief of Staff for Personnel, Lt. Gen. Truman Hempel Landon.

Says General Landon, "My early Air Force experience was primarily in Air Force operations where we had to qualify in all positions. I'm glad I did. It probably saved my life a couple of times.

"On the other hand, a young relative of mine (an Air Force captain) has developed a better military background in eight years than I was able to in eight years. One big reason: today's training is far better. Admittedly, he is more specialized, but there will be less and less development of broad experience types in the future. We can't afford now to take the time."

Landon moved into his new job last July from an assignment as Commander, Caribbean Air Command (for which he took a voluntary grade cut to Major General because of his interest in Latin American affairs, a feeling "there is a job down there that needs doing.")

His first reaction when he hit the Personnel office: "It's amazing to see how much detail and procedure into which we have to go." Other than that: "The planning is done in more or less the same way we planned in operations." Concerning the way Defense is run, biggest change Landon has noticed since his last tour in Washington (in 1953-56 as Asst. DCS/Ops, then Air Force Inspector General) is the weapon system concept functioning within the general staff organization.

It wasn't there then. "We're getting better integration in the beginning than we used to. In my area, we begin thinking about the people that will be needed for a system from the earliest moment. We're looking at the total setup early enough to avoid some of the undesirable results of former weapon developments."

Not that Landon has no problems. Among the real or potential headaches: the tendency toward officer specialization. Unless watched closely, it could steer the Air Force into the same overspecialization trend which now concerns many elements of the Navy. Finding and holding on to technical talent is another problem, although Landon says it's less of a problem now than it was.

There are two reasons for the problem: technical requirements are now so great, that industry is competing hard for the talent. He adds that it's not so rough now because of the Cordiner pay raise study (most of it) winning Congressional approval and because there has been a relaxing of the restrictions on some extra Service benefits—"But we haven't gone as far as we think we should."

Another bugaboo with which he must wrestle, as have all DCS/Personnel men before him: the Officer Efficiency Report. "It's the most important single document written on an officer. True, there are other documents, but none provides the same continuity. You have only to sit on one board to realize its value. We have spent a lot of time on the ER through the years trying to arrive at a proper form, and we probably always will—but it's never going to be perfect."

Landon's own ER rating is top grade. Son of a Midwest banker-farmer (who married a German girl while studying piano in Leipzig), Landon was born in Missouri, went to high school in Carlinville, Ill. "I went through the usual boyhood evolution of wanting to be, variously, a locomotive engineer, a fireman, and so on until I went to Blackburn (Ill.) college and found out about this flying business."

"Since Carlinville had only one newspaper (a weekly) and we were a little bit out of touch with this sort of thing, the only way I knew to get into an airplane was through West Point" (a course two of the town's leading citizens, a West Point-graduated general and an Annapolis-graduated vice admiral, helped him plot).

He graduated from the U.S. Military Academy in 1928, was commissioned a second lieutenant in the Coast Artillery Corps, moved into Primary Flying School at Brooks Field, Texas.

His first tour was with the 60th Service Squadron at Fort Crockett, Texas, where he first met "another of those seventeen-year lieutenants I mentioned earlier" name of "Nate" Twining. His first exposure to Latin America came in 1936 when he joined the Sixth Bomb Group in the Panama Canal Zone. He arrived in Hawaii on the same day the Japanese did, spent most of the war commanding the Seventh Bomber Command.

Highlights of his career lately: one of the founders of the National War College; Air Force member of the Joint Strategic Survey Committee in the Office of the Joint Chiefs of Staff; DCS/Ops Director of Plans (in 1950); Deputy Commander-in-Chief and then Assistant to the Commander-in-Chief, United States Air Forces in Europe (he actually ran USAFE for one time-stretch while Gen. Norstad was setting up Allied Air Forces in Central Europe).

A general at 38, 54-year-old Truman Hempel Landon today is running one of the Air Force's key operations, in essence, supplying manpower for a military team constantly being required to do a bigger job with fewer people. To do the job well is going to demand a healthy chunk of administrative talent. A normally personable Midwesterner, Landon has already acquired an office reputation for tough talk when it's needed.

Asked about his businessman role, Landon says, "The Air Force is one service which realized, even when still an Air Corps, the importance of good management principles. Lately, we have been looking more and more to management, are more aware of it now.

"But I feel we sometimes misuse the term. Good management practices occur, or should occur, in all phases of responsible top positions—operations as well as the handling of funds and resources."

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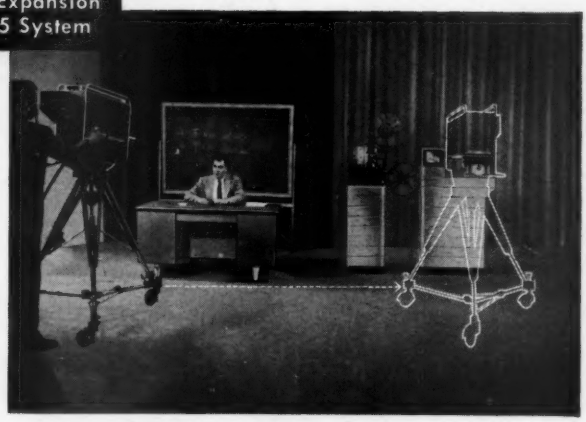

2. Expand to include film and slide accessories using the same camera.

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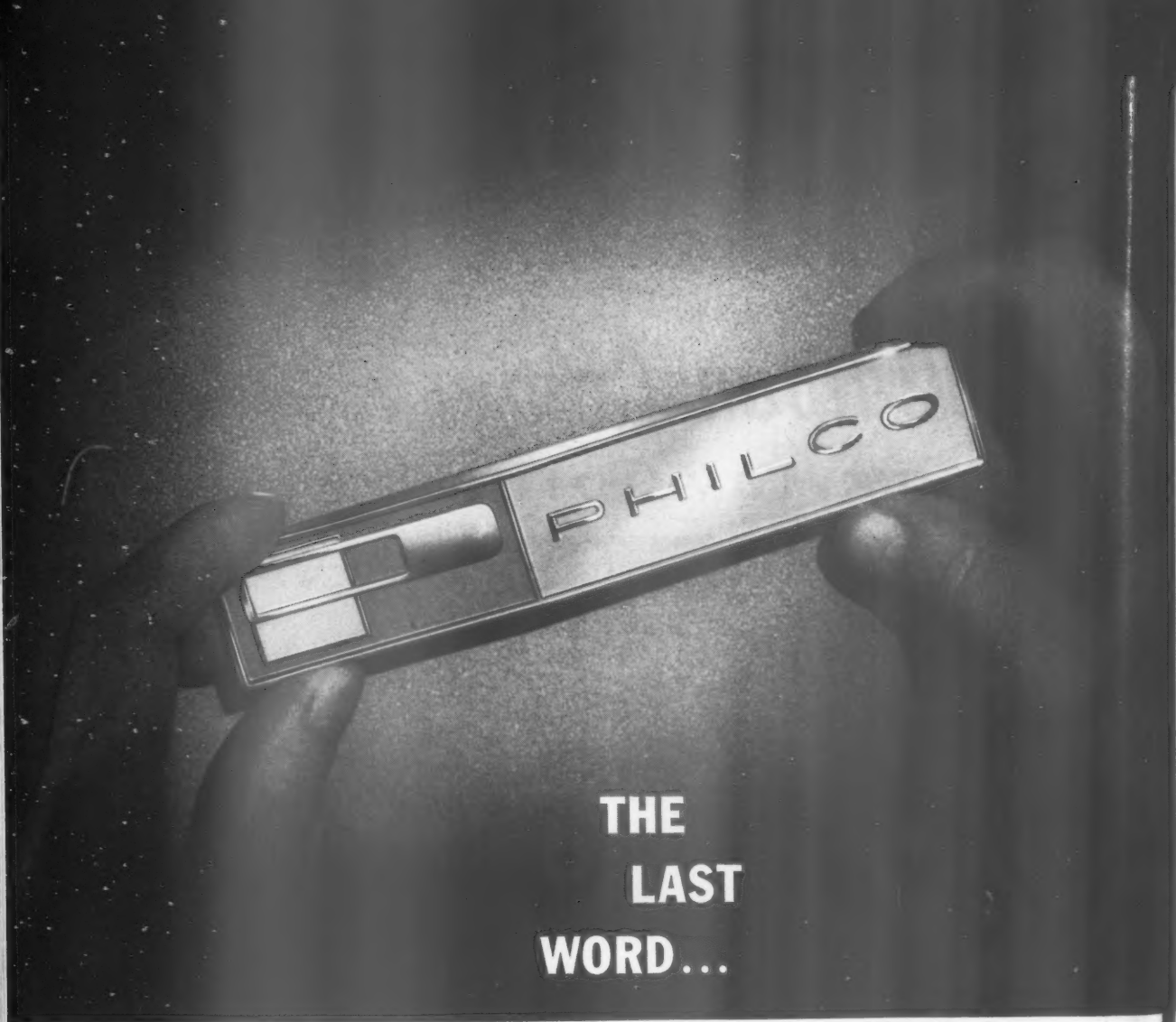

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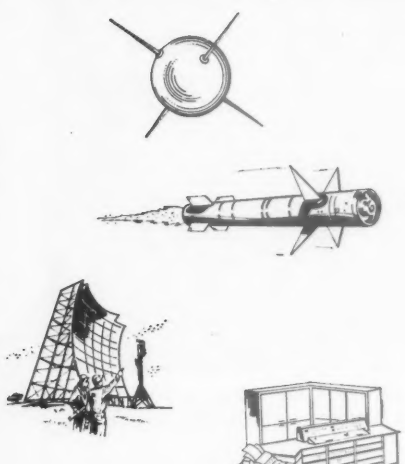

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Logic and Leadtime at ARDC

Reorganizing ARDC won't save a billion dollars next year, but it will make a better, more efficient Command

by Fred Hamlin

"NO MATTER how you rearrange the furniture in your house, the grocery bill is going to be about the same. All we have tried to do in reorganizing Air Research and Development Command is to improve our own internal management structure."

The speaker is one of the top managers in the Air Research and Development Command. The reorganization of which he is speaking is one that touched practically every office in ARDC, from Headquarters down to the field. The aim is to strengthen the entire ARDC organization, and to bring all of the responsibilities of ARDC into sharp focus—at the proper place within the managerial structure.

The changes in ARDC will bring that command into closer accord with the Weapons System way of doing business, while at the same time allowing for closer Air Force control over the many costly and complex projects for which it has ultimate control responsibility.

At the ARDC Headquarters level, the aims were to draw a sharp, clean line between line and staff work, doing away with some of the dim gray areas that had previously plagued the command. By divorcing the need for what one high-ranker called "keeping an eye on project 2479," the new offices of the ARDC Deputy Chiefs of Staff will be able to strengthen the overall planning, analysis and policy elements of their work.

These Deputy Chiefs will replace former "Deputy Commanders," covering Resources, Research, Ballistic Missiles, and Weapons Systems. At first glance, these categories would appear somehow unrelated and slightly illogical; at second glance, this is fairly obviously the case. What ARDC discovered was that in allowing its organization to evolve with the skyrocketing requirements of Air Force research, and development, it had given the organization too big a job—it simply couldn't keep up in its present form.

An excellent example of this is the Ballistic Missile Division, formed in the face of top-priority need for development of an Air Force space/missile force. Ordinarily, under the old set up, BMD would have been made into one of the many centers that handle actual hardware development for ARDC. But the problem BMD had to meet definitely called for a more elevated position—one where the BMD Commander could ram his programs through successfully in the shortest possible time. ARDC felt that the best way to do this would be to have the BMD Commander (then Gen. Schriever) reporting directly to Commander, ARDC, as a Deputy Commander. In this capacity, the BMD Commander would also have the power to make decisions on his own.

As witnessed by Thor, Atlas, Titan —in short, the Air Force ballistic missile program—the system worked. So well in fact, that the present field set up in ARDC is moving rapidly towards more of the same. Although Col. J. C. Maxwell rightly points out that many techniques used by BMD would have no application outside of that organization, it is fairly plain that many of the other techniques will serve as models for the other two development Divisions when they are set up.

These two will be the Wright Air Development Division (combining Wright Air Development Center and Directorate of Systems Management) and the Command and Control Development Division (with elements in Cambridge Research Center and various ESPO's). The remaining Division in ARDC will be the Research Division, using the present AF Office of Scientific Research, and including ARDC's European Office and other groups concerned with basic research.

While the difference in the jobs that the various centers must handle makes it difficult to compare the organizations themselves, it is possible to spot one or two fairly significant trends.

First, steps will be taken in each of the three development divisions to bring Air Materiel Command into closer contact with the job that ARDC is doing. The arrangement will probably be much like the one presently used at BMD, with AMC maintaining a Ballistic Missile Center, virtually in the same building. This relationship will be easy to set up at the Wright Air Development Division, working with the already-existing Aeronautical Systems Center at Wright-Patterson AFB. In the case of the Command and Control Development Division, more work will be needed—supplying one of the reasons that CCDD will be the last of the Divisions to be set up.

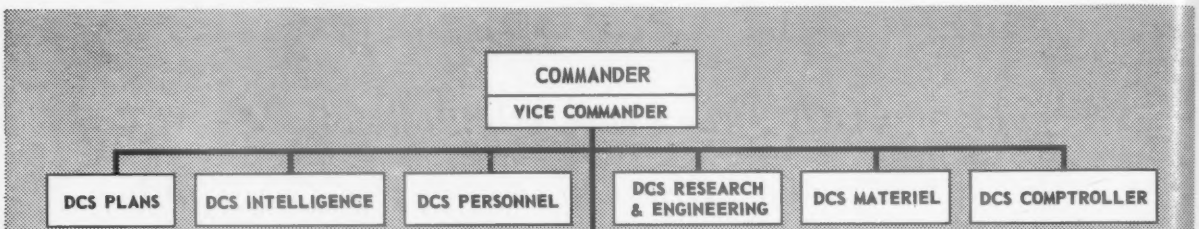
Second, ARDC will extend its efforts to improve service to the user commands—SAC, TAC, ADC and so on. The dual aim will be to maintain closer contact with these commands throughout the development cycle, and to put ARDC and the user commands in a better position to work with the concept of concurrency, called "the one area that I consider to be of great importance in compressing time" by ARDC Commander Schriever.

To this end—and again following BMD's lead—each of the development divisions will include an office similar to, and handling the same job as SAC-MIKE at the Inglewood missile division. The basic job is to make sure that the using command is ready (in terms of personnel, facilities, training) for the weapons they will get from ARDC.

In both of these instances, one major target under fire is weapons integration —and all of the many headaches connected with this area of transferring a development project to materiel inventories and to the hands of the units which must work with the finished weapon system. Because of the rapidly diminishing of lead times brought about by using the concept of concurrency, the line between a R&D project and an operational system has become fainter and fainter. The inevitable result has been the need for ever-closer coordination between ARDC, AMC and the using commands.

Fourth of the operating divisions will be set up without involving any

Responding to the needs . . .



major changes in the former Air Force structure. This will be the Air Force Research Division, located in Washington under Brig. Gen. B. G. Holzman. Including the old Office of Scientific Research, this division will have a broader base than any of the other divisions. The job is to handle the "R" in R&D for the Air Force. This means that the division will be operating in an area that includes and goes beyond each of the specific areas, working generally in the area of basic research.

In this capacity, the Research Division will work closely with each of the Development Divisions, and will provide a sounding board for the many ideas regarding basic research that are generated outside of the Air Force.

With each of the division commanders acting as Deputies to Gen. Schriever, and thus having authority to make decisions in their own areas, the ARDC Headquarters will be freed for more careful and effective staff work and policy guidance. The Headquarters reorganization was made official on 5 October, and only a few polishing touches are needed to have the new set up in full swing.

In comparing the before and after organization charts for ARDC Headquarters, it is hard to believe that it is the same organization. The new arrangement is almost a classic staff picture, with the six Deputy Chiefs of Staff covering the areas that would be expected.

In what is probably the most important single change in the structure, all of the previously scattered planning functions have been brought together in one office—the new DCS/Plans. In doing this, ARDC was able to consolidate the work formerly done under the Deputy Commanders for Weapons Systems and Research in one DCS for Research and Engineering. The new Plans operation will be the heart of the new organization.

At the same time, the new DCS for Research and Engineering will be able to keep track of the various projects in the field from their beginnings until they are turned over to Air Materiel Command. Previously, monitorship had to be moved from Research to Weapon Systems, depending on project status.

Under the new system, the progress of a given project would follow roughly the following pattern. Most likely a new idea would be generated in the field, and would then be submitted to ARDC Headquarters, where it would be turned over to the DCS for Plans, for evaluation.

Next, the project—if approved—would be passed on to Headquarters, USAF, where a go-no-go ruling would either kill it or return it to ARDC. If returned to ARDC, it would be given to the office of the DCS for Research and Engineering. DCS/R&E would then farm it out to one of the field divisions, along with the full authority to insure earliest possible completion.

Throughout the development cycle, the work done by ARDC Headquarters is confined to broad programming, planning and policy guidance. The move is summed up by Gen. Newton, DCS/Plans: "The former Headquarters ARDC structure was geographically dispersed and had a mixture of command and staff functions to the detriment of accomplishing either of these functions effectively. The new Headquarters ARDC organization is effectively streamlined through proper decentralization of detail program management to the field, and a strengthening of appropriate command headquarters functions in the areas of policy, planning and program analysis."

As is indicated by the extent of the changes, the groundwork that has been laid for the ARDC reorganization was thorough and extensive, and has been in the works for over two years. On 21 November, 1957, Chief of the Air Staff Gen. Thomas White requested that the AF Scientific Advisory Board conduct a study on Air Force research and development. The result of this study was the so-called Stever Report, published in June 1958.

Among its many recommendations, the group suggested that ARDC be reorganized along functional rather than geographical lines, with Deputy Commanders in charge of these areas, and the facilities doing the work. Although Air Force disagreed on the definition of "functional lines," the recommendation was followed.

Stever suggested that the amount of control exercised from the top of the chain of command be reduced, and authority and responsibilities placed at the same levels. Control of specific projects no longer rests with ARDC Hq., but is delegated to the field Deputy Commanders.

Stever proposed that research and development funds be handled as a separate appropriation. The fiscal 1960 budget contained such a breakdown.

In April this year, Lt. Gen. Bernard Schriever was named to replace Lt. Gen. S. E. Anderson as Commander, ARDC. One of his first acts in the new job was to appoint a committee of Air Force officers to conduct a follow-up study on ARDC organization.

Comments one Air Force committee member: "We had the same objectives as the Stever group, and found all of the same problems. Our only points of disagreement were on how to take care of the problems. You might say that our work was an effective response

to the Stever report." Although there were definitely differences in the problem-solving approaches, it might be more accurate to say they were variations on the same theme. As indicated above, the process within ARDC was more refinement than disagreement, and there can be little doubt that the ends to which the reorganization is moving are the same as those suggested by Stever.

But the groundwork is only half the battle in revamping an operation as large as the billion-dollar Air Force Research and Development program. If it took two years to plot the course, it will take another year for ARDC to get where they are going. While major parts of the change were only a matter of changing a title or rewriting a job description, there are still many problems to take care of before the last domino can fall in place.

As outlined by Gen. Schriever in a recent press conference, the entire overhaul will be handled on a three-part basis, working from the top down. With a few relatively minor exceptions, the new staff alignment at Headquarters, ARDC is complete at this writing. Still in process is the detailed planning on the four divisions—with most of the work concentrating on the Command and Control Development Division. Of the four new divisions, this one comes closest to starting from scratch, and will probably require several months to hit its full stride.

Last phase in the change-over will be assigning the various centers throughout the Command. Eventually, all of these will be assigned to one of the Deputy Commanders.

If it is true that re-arranging the furniture won't cut down on the grocery bill, it is equally true that the rearrangement can make the house much more comfortable to live in—and maybe even save the housewife some time in getting her work done. While saving money may not have been the major objective of ARDC's reorganization, it is worth quoting Lt. Gen. Schriever on what is being tried:

"I can state very simply what our major objective was, and that is to so organize the Command and so establish management procedures which will give us maximum capability for compressing the time between the initiation of developments to the introduction of new systems into the operational inventory."

There can be little question that the organization will do much to enable ARDC to do a more efficient job of providing the Air Force with the up-to-date equipment that it needs to provide the nation's front line deterrent force.

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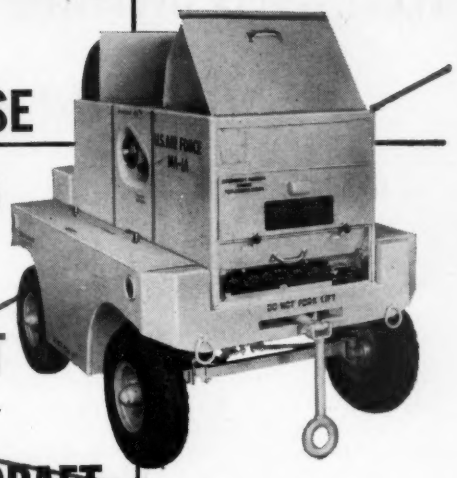

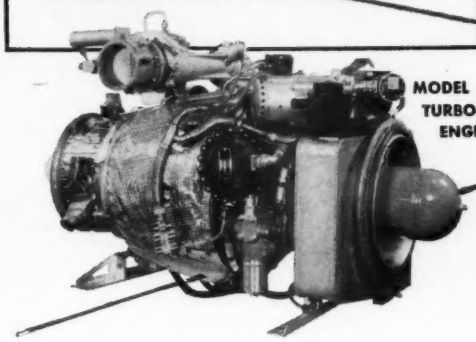

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Stocking Ships for the Future

by RAdm. Thomas Burrowes
Commander, Service Force Atlantic

A CHAIN reaction is now in progress, reaching from the laboratory bench into the supply lockers of every ship of the U.S. Fleet. This is the process of modernization. Research in new weapons and equipment is the first action in the chain—stocking repair parts for them is one of the last. But until the whole reaction has been completed, we cannot have a modern Navy.

Modern equipment, of course, requires maintenance. Supply readiness, therefore, is fundamental to fleet readiness. To maintain Fleet readiness requires periodic check-ups. This is the essence of supply overhaul.

For the past year Commander, Service Force, U.S. Atlantic Fleet has had contracts with Consultants and Designers, Inc. and Designers Service Co. to provide Fleet Supply Research Teams. Timed with their basic overhauls, our ships are assisted by these contract teams, or by a Naval Shipyard Fleet Supply Research Team, in performing a supply overhaul—that is, bringing on-board stocks and records into conformance with latest available allowance lists.

In brief, the process starts aboard ship about six months before the ship's arrival in port for its regular overhaul. The crew must insure that the allowance list and actual on-board equipment agree. Completing this at sea reduces the number of tasks to be accomplished during the overhaul period.

During the overhaul period all storeroom stocks are identified, inspected, and counted. Inventory results are recorded on appropriate ship's stock records. Invoices for excess material and requisitions for shortages, together with a report covering the entire supply overhaul, complete the task. Invariably, adjusting storage space and revising the material locator system are part of the task.

The Navy furnishes from the ship's crew the technical and specialist ratings required for the supply overhaul. The Fleet Supply Research Team assists and guides shipboard personnel assigned to the project. Navy's contribution to the team will vary, since many smaller ships can furnish few, if any, specialists. However, military personnel have contributed from 40% to 80% of the supply overhaul effort.

In present early stages, the operation is essentially a research project which, of course, will change with experience. Information is gathered reflecting usage rates, technical considerations, and the crew's own experience in operating shipboard equipment. This knowledge will eventually serve to increase the ship's efficiency and endurance.

Several trends in naval affairs have resulted in the principle of supply overhaul. One of these is the result of our various research programs. New equipment is being installed aboard ship at an increasing rate. This has double effect in support and supply areas.

What Navy Faces

First, the modernizing ship's equipment currently involves about 350,000 changes annually in Navy's stock lists. Paperwork inherent in these changes would overwhelm supply channels except for mechanized procedures. But while paperwork may be loaded on machines, physical inventory changes must be made by men.

Second, the make-up of the crew is changing. Increasing complexity of equipment requires specialized operators and repairmen. These personnel make up a growing percentage of the ship's crew. As specialized personnel increase, Supply Corps personnel and others can be expected to decrease, growing complexity and numbers of supply items notwithstanding.

This is reflected by comparing stocked supply items and supply billets on ships before World War II and now. There are few statistics to trace the changes, but certain changes may be readily seen. The number of items in the custody of a Supply Department on a cruiser before World War II was about 8,000. Today on a comparable ship there are as many as 36,000 items in supply. But in numbers of billets and in experience, present personnel allowances represent less than previous peacetime allowances. In comparable situations there was formerly a Commander (SC) versus Lieutenant Commander (SC) now. Moreover, he usually had one more officer to assist him than is now the case. Finally, he usually had a greater number of storekeepers to handle the fewer supply functions.

Still another complicating side effect of modernization is often encountered. For a period of time—lengthening with the degree of austerity we practice—the obsolescent continues to be used alongside the modern in ships of the same class. In few instances is equipment replaced on all ships of a class at one time. The kinds of equipment, both the old and the new, aboard otherwise similar vessels, are doubled.

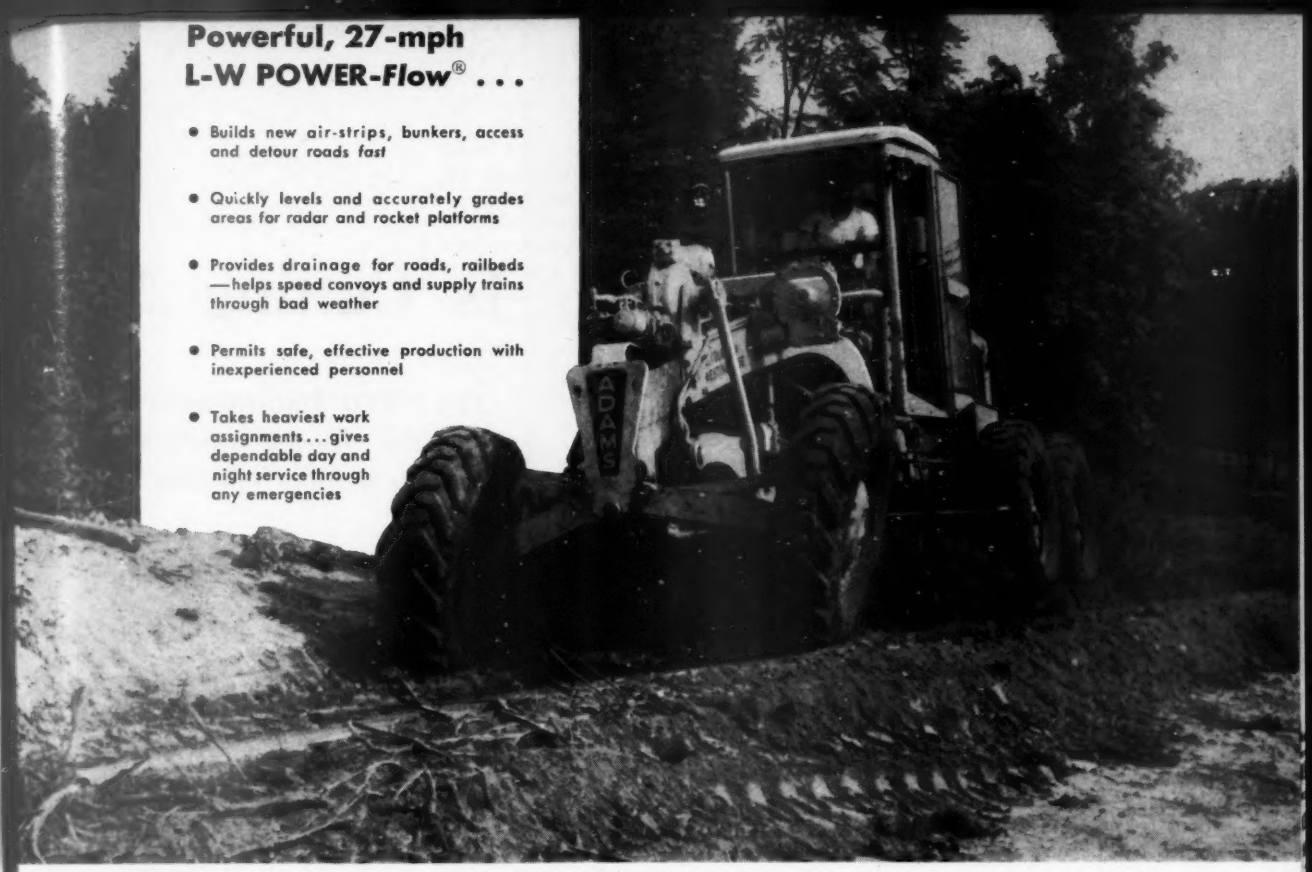
Supply overhaul aims to enhance Fleet readiness and to provide data needed ashore and at sea for the best management of supply afloat. It is also an innovation in methods which well suits the Navy's austerity program. While supply personnel aboard ship face an expanding workload, the number of billets is being held at a minimum. The squeeze must not impair the readiness of the Fleet. The new approach to supply overhaul may enable us to up-date supply afloat without disturbing permanent manpower distribution.

Other considerations are reflected in the development of this procedure. It is recognized that stocking mechanical, electrical, and electronic devices presents pitfalls which neither the training nor experience of the typical storekeeper can avoid or solve. Such problems as these and the periodic review of supply matters are basic reasons for supply overhauls.

During the past year, three Fleet Supply Research Teams have been functioning on the East Coast. They have assisted in the supply overhaul of 17 Atlantic vessels. Of the half-million items found on board these vessels, over twenty-five per cent were excess of requirements. Book value of such items is over $2 million. More than 60,000 items on revised allowance lists were found lacking. Thus, offloaded items alone will more than defray the cost of the program.

Using contract teams to initiate this procedure eases the test of the whole principle of supply overhaul. Whatever the short-run benefits of the program, and they appear to be substantial, the question of long-run gains must remain open.

If expectations for the program are realized, the plan will be refined, stabilized, and turned over to Naval personnel, without the help of the contractor. If long-run benefits do not reach expectations, the program will continue only so long as needed to bring supply afloat up to present standards of readiness.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Why Central Supply Is Cutting NATO Cos

The NATO Maintenance Supply Services Agency offers member nations a more efficient way of

by Anthony Vandyk

● **Paris, France**—Substantially reduced procurement costs are being achieved for the countries of the North Atlantic Treaty Organization by the NATO Maintenance Supply Services Agency.

Established in 1958, the Agency's mission is "to facilitate the supply of maintenance materials among NATO nations with the objective of maximizing the effectiveness of logistics support to NATO Armed Forces and minimizing the cost to NATO nations individually and collectively."

The basic advantages that the NATO Agency gives to member countries are: (1) savings through central procurement; (2) savings in repairs instead of new procurement; (3) savings in centralized repair contracting; (4) savings in buying and storing Insurance Items; (5) conserving foreign currency —particularly dollars; (6) providing a central point for specialized advice and assistance in supply, maintenance and procurement, with a library of essential information.

In the first years of NATO, work was directed to building up the front-line strength of the various countries. This "shop window" concept was the only possible one at the time. Subsequently it became more important to support the "shop window" with a central organization for spare parts, and for maintaining equipment with which the forces were armed.

The United States originally shouldered most of the task of setting up centralized supply management for NATO countries. Help was provided to Grant Aid countries through Military Aid Advisory Groups. But in 1956 Defense Department saw that Grant Aid was not building up the ability of European countries to manage their own supply and maintenance problems. Two years later, the result was the NATO Maintenance Supply Services Agency.

The Agency has a truly international staff. General Manager is Brig. Gen. C. A. Heim, USAF; Deputy General Manager is Ingenieur General Carel, French Army; the five Division Chiefs are: Colonel F. Fassio, Italian Air Force, Procurement Services; Colonel T. H. Bakker, Netherlands Army, Maintenance Services; Dr. Artur Feest, Finance Ministry of the German Federal Republic, Financial Services; Mr. Whitworth, USAF, Executive Secretary and Head of the Administrative Division; and Air Commodore W. A. Stagg of the British Royal Air Force, Supply Services.

Initially, NATO Maintenance Supply Services Agency is undertaking a redistribution program on high-value items for five aircraft types, and for selected items—based on value and usage—in fifteen pieces of major army equipment. The five aircraft and fifteen major army items are those in Europe in the greatest numbers. They comprise:

Air Force Equipment: F-84; F-86; C-47; C-119; and T-33.

Army Equipment: G-508 Truck, 2½ Ton, 6x6; G-509 Truck, 4 Ton, 6x6; G-116 Truck, 6 Ton, 6x6; G-507 Truck, 1½ Ton, 6x6; G-503 Truck, ¼ Ton, 4x4; G-502 Truck, ¾ Ton, 4x4; G-200 Tank, light, M24; G-226 Tank, Medium, 90m/m Gun, M26, M26A1; G-102 Carrier, Half Track, M2, M2A1, M3, M3A1, M4, M4A1, M15A1, M16A1, M21; G-185 Vehicle, Tank Recovery, M32B1, M32A1, M32A1B1; G-187 Vehicle, Tank Recovery, M32-A1B3, M32B3; G-207 Tank, Medium 76m/m Gun, M4A1; G-136 Car Armored, Light, MS; G-176 Car Armored, Utility, M20.

The United States provided much information on these selected spares. The information was transmitted to the Agency on readily usable punch cards. About 10,000 items are involved.

Although details are classified the Agency will also provide supply and maintenance management services for Allied Command Europe Forward Scatter System. The Agency is also working with the U.S. Army to establish a European Inventory Control Point for supply and maintenance support of certain guided missiles systems furnished to NATO nations.

Where Chateauroux Fits

While policy planning is directed from Paris, the actual operating center of the NATO Supply Services System is at Chateauroux, in Central France. Chateauroux, headquarters for Air Material Force, European Area, (see June AFM) is now the location of the NATO Supply Center, supplying management and the stockroom facilities. The NATO Supply Center at Chateauroux is now managed by USAF but it will eventually be turned over to NATO, probably in mid-1961. The U.S. will also turn over Chateauroux depot functions to NATO as capability develops. Chateauroux has already assembled parts packages for the five aircraft types in the program. Spares for the NATO lightweight fighter, the Fiat G-91, will also be stocked at Chateauroux. Instead of having each country stock spares for the G-91, the stocks will be held at Chateauroux and distributed as needed.

Pooling of resources is particularly important for the missiles which are being supplied to NATO nations in increasing quantity. Missiles are expensive and so are their components.

Costs

doing business, and may have sweeping implications for the West European economy.

NATO costs should be lowered by placing distribution and control of missile parts under Chateauroux.

But the one area in which the NATO Maintenance Supply Services Agency really pays off for member nations is in procurement. Colonel F. Fassio of the Italian Air Force and chief of the Procurement Division, cites the following example: "When an order comes in—say for 100 F-84 aircraft tires for Italy—we immediately check to see if any other countries have these tires in excess. If they do, we arrange to have them transferred. Say there are no excesses. We obtain from the manufacturer the prices—not only for 100 tires but for 200 or 500 or 1,000. When we get the prices, we go to the rest of the countries and ask them if they need similar tires. We find out perhaps that another 400 tires are needed. So we already have the price and it's a lot lower for Italy than if she had gone ahead on her own to buy the tires.

In many cases no new procurement is necessary. There are few barriers to transferring excess items from one country to another that is short. If Germany is short of a particular F-84 part but Italy has an excess, the Agency simply orders the transfer and makes the necessary changes in its books. The Agency can buy anything it needs for stocking the Chateauroux depot without worrying about customs duties or taxes. When the items are sold to requisitioning countries, they are usually taxfree.

The Agency also saves money by centralizing contracts for repairs. This ensures that enough work is available to make it worthwhile for a contractor to bid on the repair. These advantages are particularly apparent for insurance items which are not required often, although they may be costly and important. By centralizing procurement and repair of these items overall cost to each nation is cut, and money is freed for other military expenditures. By centralizing management of storage of these items, more economies are possible because of the reduced storage room requirements. It will be seen that these insurance items fully justify centralized control.

Centralization permits maximum use of trained specialists in supply, maintenance, and procurement. Instead of small teams in each country working in ignorance of what others are doing, and usually with minimum facilities, one team, specializing in a particular field, can efficiently coordinate the whole job.

The stocking at Chateauroux is financed by a $25 million loan from the United States. But before the loan was made, some $8 million in advance orders had already been placed by NATO countries. NATO Supply Center customers pay a 5% surcharge on all items procured through Chateauroux to cover the cost of establishing and operating the facility.

Technical aid is available from the Agency although demands have not yet been great. Germany used the Agency's help in setting requirements for the German Air Force on a large order for J65 engine spares. The Agency was asked to recommend a spare parts list to be placed on contract. A member of the Agency's Supply Division carried this list to the U.S. and obtained recommendations. All major items were later screened by the contractor's field representative and members of the German Air Force overhaul installation at Erding Air Depot. Thirteen items were deleted and 88 items were added. Quantities were reduced on 44 items. The economic order concept was applied to the whole order. This brought an increase in 164 items (about 30% of the total) but at an increase in total cost of less than 1%. As a result of changes made on the list it will now better support maintenance and overhaul programs for the engine. The current order is some $400,000 less than the original contractor's recommendation. This is a saving of $400,000.

Free movement of military items among countries and simplified organization for collective buying of goods and services from the best competitive sources is achieving what European statesmen have dreamed about for centuries. It is not too much to say that the basis for a unified economy in Western Europe has already been established through the NATO Maintenance Supply Services Agency.

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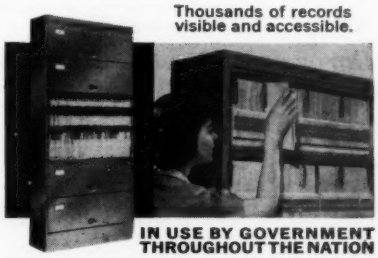

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Systems Management: Making it Work

Army's Transportation Corps describes how a sound Systems Management setup runs

by Harry A. Jacobs
Systems Management Officer
Executive for Programs
Office of the Chief for Transportation

LIKE any big organization where defined and often limited resources must be applied to set objectives, the Department of Defense is continually striving to increase the effectiveness of its management.

In the last few years, the individual Service Departments, encouraged by Department of Defense, have frequently applied Systems Management as a technique in selected programs, particularly those relating to new weapons, such as Polaris or other missile systems.

A more recent and less known development is use of systems management in introducing new conventional weapons and improved equipment. Also, it has been found that systems management can be applied not only to commodities (weapons and equipment), but to capabilities and services.

Army Transportation Corps, because of satisfactory experience with systems management in the expanding Army aircraft field, has recently adapted the technique to other equipment and selected capabilities and services. This extension has aroused the interest of top Department of the Army officials and directors of material activities in the Technical Services. As may be expected, most interest hinges on "how will systems management affect my program—what will it do for me?"

In discussing systems management, a basic premise is that the technique is a tool for the chief of a major organization which can help him to render decisions vital to success in his mission. Systems Management is a control mechanism in attaining objectives by charting specific actions within a set time frame. It provides means for compilation, analysis and evaluation of information on progress in specific areas, correlating all factors with the end objective.

An outline of the steps for developing a sample system will clarify the technique and its use. In this connection, definitions of a few important terms will be helpful.

System: An arrangement in time of integrated actions and events leading to a predetermined objective within a given time frame.

System Management: The direction, evaluation, and control of a specific System to assure timely and balanced meeting of a planned objective.

Master Schedule: Diagrammatic representation of a management system, consisting mainly of a time-scale and, against the time-scale, points representing key actions to be completed to realize the overall system objective.

Master Schedule Directive: An action directive which lists the key actions on the Master Schedule, assigns responsibility for their accomplishment, and sets the date when each action must be finished.

Basically, System Development involves identifying the system, determining essential actions, and formally establishing the system.

The first step is to determine objectives and goals to which systems management can be applied. Subsequently, two factors govern the decision to use the technique: suitability and need. Suitability means that the objective can be effectively managed under the systems principle. Need means that meeting a set deadline is essential to a major objective of the organization.

Developing the Goals

After identifying the system, the next step is to develop intermediate, time-phased objectives. This involves determining the actions to be taken and setting completion dates for these actions. Achieving overall objectives for which the system was formed depends on successful and timely completion of every action. The time frame for the system and time phasing of actions must be realistic.

Since System Management is applied on a broad basis, the initial directive should be issued by the Commander. The directive should define the system objective, designate the System Manager, staff and any field elements with action responsibility, and the date the objective is to be reached. The initial directive should be delayed until the Master Schedule is complete. In that way specific action responsibility will be assigned at the earliest possible time.

Once the system is formally set up, the system manager continuously monitors accomplishment of the time-phased actions. System management requires documentation, determining necessary coordination machinery, making necessary adjustments in actions, and system analysis.

Documenting System Management is in two parts: guidance and control. Guidance documentation is written information from the System Manager to offices with action responsibility. It may cover new requirements, deadline changes, shifts in emphasis or even modified policy guidance.

Control documentation consists initially of preparing the Master Schedule and Master Schedule Directive. Reports are then set up and progress charts are developed and maintained. These allow the System Manager to tell at a glance the status of the system, and guide program directors by pinpointing inter-relationship between actions. It also provides clear, timely information to the Commander, giving him a total picture of progress and serving as an up-to-date prop for briefing superiors.

Coordinating actions necessary to the objective of the system is vital to managing the system. It is best done through a System Management Group, consisting of the System Manager and representatives of all agencies with responsibility in the system. Membership may be extended to individuals outside the organization to smooth coordination and liaison. The Group meets regularly to review status of system actions.

In accomplishing System Management it is not unusual that adjustments in the Master Schedule be needed. Slippages take place and dates may have to be shuffled. Certain actions may have to be redefined. Depending on the nature and extent of adjustment, a formal change is required. In some cases adjustment can be recorded by changes on progress charts. In other cases they may involve transfer of responsibility for important actions and require a revision on the Master Schedule and the Master Schedule Directive. Documentation must at all times reflect current status.

The System Manager continuously evaluates progress made toward the objective. He may find certain actions on the Master Schedule are not correctly time-phased and that others need revision or deletion. Besides reviews by the System Management Group, systems analysis also may stem from

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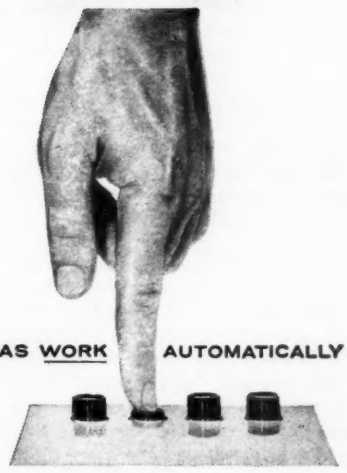

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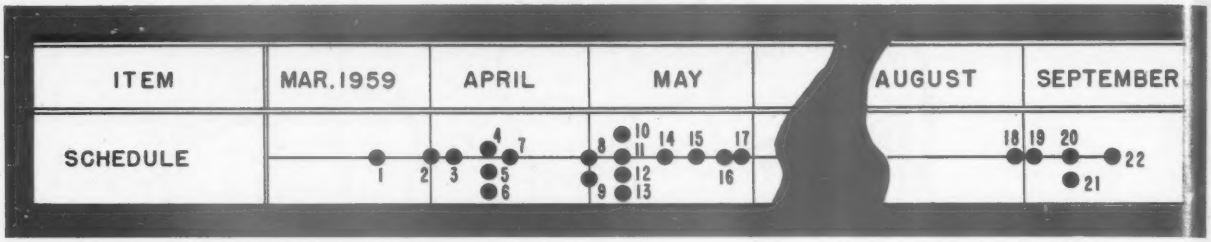

NO.	ACTION	DIRECTOR PROGRAM ACTIVITY	DATES (1959)
1.	Forward Restatement of Container Requirements to Deputy Chief of Staff for Logistics	ACV	20 Mar
10.	Brief Deputy Chief of Staff for Logistics re Limited War Rail Requirements	EXP	4-8 May
11.	Brief Transportation Board re New Guidance for Five-Year Material Program (FYMP)	EXP	6 May
17.	Forward FYMP Guidance to Transportation Supply and Maintenance Command	SAR	29 May

NO.	ACTION	PROGRAM ACTIVITY DIRECTOR	DATES (1959)
18.	Complete Revision of FYMP	ACM	31 Aug
19.	Forward Revised FYMP to Office Chief of Transportation	ACM	1 Sep
20.	Complete Review of Revised FYMP	SAR	7 Sep
21.	Brief Chief of Transportation re Revised FYMP	EXP	7 Sep
22.	Forward Revised FYMP to Deputy Chief of Staff for Logistics	SAR	15 Sep

command appraisals of program execution which occurs in many Defense agencies.

A brief review of systems management in an actual Transportation Corps situation may provide a better understanding. Systems of Corps-wide application are designated by the Chief of Transportation. A Deputy Chief of Transportation is made System Manager and is responsible to the Chief for meeting the system objective. The System Manager is aided by System Management Engineers who are responsible for the day-by-day activities on the systems. One senior system engineer usually handles each system.

The System Manager, through the System Management Engineer, monitors all actions on the Master Schedule; guides and assists Program and Program Activity Directors; adjusts the program in coordination with the Program Directors; and recommends major changes in the Master Schedule to the Chief of Transportation.

Program Directors are responsible for supporting and monitoring actions assigned to Program Activity Directors in Master Schedules; participating in or appointing representatives to System Management Groups; and keeping informed of progress of systems management in which there is direct interest. Functions assigned to Program Activity Directors include accomplishing all assigned actions within scheduled time periods and reporting completed actions to the System Manager.

The Executive for Programs provides qualified Systems Management Engineers, establishes and maintains procedures to be used in applying Systems Management, and furnishes guidance on Systems Management techniques. The Executive for Programs also insures that the Systems fully support applicable Department of Army and Department of Defense programs.

Wide use of Systems Management in the Transportation Corps is shown by the number and types of management systems in being or under development. Eleven Army aircraft types are under systems management. Systems are also being developed for three aircraft power plants. Also, two new amphibious vehicles were recently placed under systems management.

Not Hardware Alone

One capability-type system is being administered. Concerned with revising a projected materiel program, it shows how systems management can be applied where an important administrative goal must be reached in a brief time span. Due to policy changes, the current Five-Year Materiel Program had to be revised drastically. Because of time limits and importance of the Program use of systems management was appropriate and necessary. Various charts represent documentation for this management system. One of these, of course, is the Master Schedule, with numbered points on it representing specific actions from the Master Schedule Directive. A chart is also used to plot accomplishment of actions. Blank spaces on such a chart would indicate deletion of certain actions. This was found necessary in work on this particular system and would show that considerable "System Adjustment" may be needed.

One application of systems management to a service-type system has been made to date, on the extent and type of transportation support required for the Army Missile Program and the DOD projects on the Space Vehicle Program.

The role of systems management in day-by-day operations cannot be set without knowing the inter-relationships of the technique, the program concept and overall organizational management.

Because of the emphasis placed on the program system in the Army, compatibility between program and systems management is important. Systems management aids in work with the command program. The commander may use it to control objectives involving multiple programs. There is no room for conflict or competition. In many cases, actions needed for a particular management system are already a part of other programs. If any actions in a System are not programmed, the program activity director should be sure they are included.

Systems management occupies a sound place within the command management concept. It is a command tool. It should be used only in complex situations of great command interest. The success of any system depends on how well it serves management in decision making. Value of this System is its synthesis of significant command actions to provide the commander and his staff with the "big picture." System Management also greatly reduces "putting-out-the-fire" management by identifying problem areas in time to let the Commander apply corrective measures before he is faced with the actual problems.

Crystal-Ball Gazing . . .

(*continued from page 15*)

cushion supported platform which will carry 800 people plus equipment).

And, assuming the Russians can and will do anything we do along these lines, the Air Force is looking ahead ten years in technology to the satellite reconnaissance systems—to find and destroy these same mobile military targets. The planning trick: Avoid becoming so enamored with these way-out ideas (even though all of them are technically feasible today) that we leave ourselves indefensible against such an old fashioned thing as a bomber attack next week.

The Economic Hooker

And even with all these philosophical problems about planning and programming, monumental as they are, there is another hooker: the economic decisions, i.e. the budget, basically. If the nation were willing and able to give the Defense Department all the resources imaginable by anybody, the long-range planning job would become a snap. There are plenty of things worth doing. When the military begins to put priorities on the alternatives, under the squeeze of a limited pocketbook, picking the right choice becomes a little hectic.

(In addition to all their fears about finding enough money to cover their national defense responsibility, the military finds itself saddled with a demand to "get going in space"—a responsibility which no man in the Pentagon can justify except in terms of possible payoff at least ten years from now. It is a mark of public reaction to Russian moon shot success that such programs can be sold with relative ease today. Fifteen years ago, a similar military-born request would hardly have been allowed admittance to the front door of the Bureau of the Budget office building.)

Real point of all this: the Pentagon is doing a much more concerted, well-planned job of looking into its crystal-ball than it ever has before. The predicting job as used by military circles today have become just as important as maintaining the present defense posture.

Said an Air Force colonel of the planning problem: "It has been something like climbing the trunk of a tree, developing this technical know-how. We have the scientific knowledge to do just about anything we want. We've reached the branches. The trick now is to look ahead with enough dynamic intelligence to pick the quickest, surest branch to get us to the top."

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Procurement Trends

THE SEARCH FOR MORE AREAS WHERE SINGLE-MANAGERS would work better than present service alignments is still under study in the office of the Assistant Secretary of Defense for Supply and Logistics. Two logical areas in which the study may turn up results: communications, and health and medical operations.

INDICATION OF NAVY'S TIGHT MONEY SITUATION is witnessed by project FRAM, detailed on following page. Project amounts to transfusions with over-age ships, extending their useful life by only a few years. Cost: 10-20% of the cost of a new ship. Useful life increase: 5-8 years. Summing up: will postpone World War II hump problems with ships, spend valuable funds for a fairly short-term gain.

THE STOCK FUND WAY OF DOING BUSINESS appears ripe for some extension, with such a move looking particularly good to segments of the DOD Comptroller's shop. Because they are using less of this type of funding than either of the other two services, Air Force would seem a likely area for expansion. Because Air Force is not over-joyed with the idea, such a move would be made slowly and carefully.

BAD NEWS FOR INTERNATIONAL SECURITY AFFAIRS—notwithstanding strong voices in defense of the MAP programs—is shaping up to another year of working hard to make ends meet. Unfavorable balance of trade, plus a traditional reluctance to support this program in many areas, could mean cuts in the funding, in spite of Draper Committee recommendations to increase it.

FOUR-WORD DEFINITION OF THE DIFFERENCE between General Accounting Office and the OSD/Service auditing operations is offered by one Pentagon auditor: "We don't hunt headlines." Added the definer-of-the-difference, "but then we aren't a Congressional agency, either."

RELAXATION OF CONTRACT TERMINATION PROCEDURES appears in the immediate offing, spurred by F-108 cancellation. While the changes would not be drastic, they would re-arrange some of the sore spots of the past. Areas likely for overhaul include claims by contractors, abbreviated settlement proposals, audits and limitations of administrative reviews.

REVIEW OF TERMINATION PROBLEMS would be "thorough," say Defense sources, extending to prime contractor profits on subcontractor terminations. Eventual aim of the study would be changes in ASPR. Although industry claims the subcontractor's claim should be the determining factor, DOD holds this to be unreasonable, giving the sub no good reason for holding claims in check.

AFTER FIRST ENTHUSIASM FOR COMMAND MANAGEMENT SYSTEM a closer look at the Army's program has turned up a couple of minor flaws. Most important of the problems encountered is with the intricate detail the system requires. Although the idea of having the commander think in terms of dollars is unquestionably good, critics of the system feel that there must be an easier way to do the same thing.

BIG STEP FORWARD IN WEAPONS INTEGRATION will result in one aspect of ARDC's recent realignment. In each of the divisions, there will be Air Materiel offices included, along with representatives from interested operating commands. Hoped for result: AMC and user will know what they're up against as far as getting their new weapons to inventory, can smooth the way to a greater extent.

Navy Moves to Combat Fleet Obsolescence

Navy has announced the start of the FRAM modernization program at Norfolk Naval Shipyard for four Norfolk-based destroyers. Aim of the FRAM program (for Fleet Rehabilitation and Modernization) is to prevent block obsolescence in the Navy's fleet.

Because the majority of Navy's present fleet dates to World War II, there is the problem that all of the World War II ships will reach obsolescence at about the same time. The present level of the Navy budget would not allow for replacement of these ships on an adequate scale.

What the FRAM program will do is to pump added useful life into the aging ships, at a cost of about a million dollars a year. This amounts to between 10 and 20% of the cost of new ships. Navy will apply one of the two FRAM programs to about 100 of its destroyers.

Under FRAM One, the destroyers will undergo complete rehabilitation and repair of all hull and engineering components. Costing about $8.5 million per ship, the FRAM One program will extend the ship's life by about eight years. Modernization is carried to the greatest possible degree, given the World War II hulls to work with.

FRAM Two costs about $3.5-million per ship, and aims for a five-year extension of useful life. Under FRAM two, modifications include installation of variable depth sonar, addition of a helicopter platform, and modernization of the ship's Combat Information Center.

Navy's Weapons Bureau To Rely on Industry

The new Bureau of Naval Weapons will use existing facilities to the greatest possible degree, and will rely on industry for additional requirements before it goes ahead to build new facilities, according to BuWeap Chief RAdm. Paul D. Stroop.

A full rundown on the new Bureau will appear in the January issue of ARMED FORCES MANAGEMENT. Speaking to the Aircraft Luncheon Club, RAdm. Stroop outlined the contracting policy that would be followed by the new organization. He said BuWeap will (1) emphasize documentation of development work so that BuWeap has good specification and test results, (2) encourage competitive bidding where appropriate, (3) hold change orders to a minimum, and (4) make widest practical use of industrial resources.

Also, Stroop said, the Bureau will (5) give industry early word on all of its plans, (6) emphasize value engineering with an eye to quality production at low cost, and (7) encourage small business participation at every level of Bureau business.

Although contracting has been separated from procurement and production in the new Bureau, Stroop said that naval inspectors at company plants will still have responsibility in both fields.

Meanwhile, Navy has announced that the consolidation of Bureau of Ordnance and Bureau of Aeronautics will occur on 1 December, some seven months ahead of the deadline originally set for the merger. Personnel from BuAer and BuOrd, with custody, jurisdiction, records, accounts and properties, will be transferred to the new Bureau at that time.

Funds allocated to the two older Bureaus will be transferred to the new BuWeap, and contracts let by BuAer and BuOrd will be administered by the new Bureau.

Reason for the speedup is generally attributed to RAdm. Charles Martell, full-time deputy for a planning group under Chief of Naval Material VAdm. E. W. Clexton.

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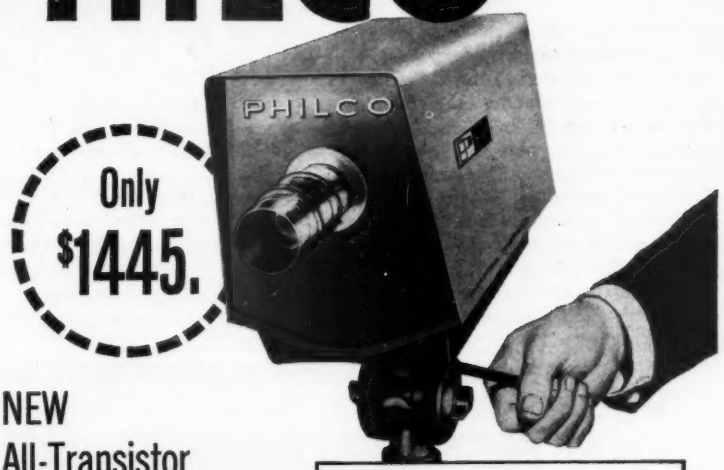

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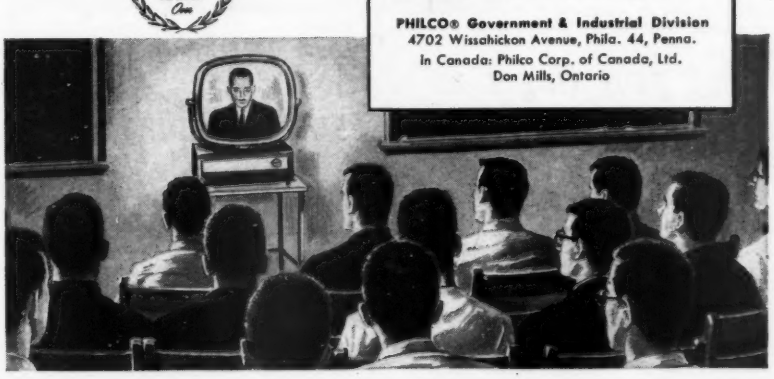

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Data Piracy Charged To Defense Primes

Improper use of technical data developed by subcontractors has been charged against upper-tier subcontractors and primes, as a result of investigations run by the Senate Small Business Military Procurement Subcommittee. The investigations resulted from complaints registered by subcontractors.

Defense Department's Small Business Industry Advisory Committee heard these and other charges against the present subcontracting arrangements presented by a staff member of the Senate group. Along with the various complaints, suggestions for improvement were presented to the Defense group.

Gist of the "piracy" complaints was that various primes would request detailed technical data from subs, then go ahead and produce the item in question in their own plant, with no consideration for the sub. Witnesses before the Senate subcommittee said that they were able to cite many instances in which primes made improper use of subcontractor proposals.

The staff member from the Senate group told the DOD panel that if they felt the problem had priority, responsibility for the piracy should be nailed down. It was also pointed out that DOD might be interested in the relationship between the data-stealing and the question of proprietary rights.

Centralized Maintenance May Reduce Navy's Costs

With an eye to cutting public works maintenance costs, Navy has announced plans to concentrate its maintenance work at public works centers at major bases. The program will be initiated at Newport Naval Base, R.I., and other bases will be selected after the Newport operation has proved itself.

The program will set up at the various bases centralized public works operations, pulling together functions that may previously have been splintered throughout the base in question. By locating these offices under a single officer-in-charge, Navy hopes to save on manpower, facilities and funds, while providing better service to its customers.

Although there are public works centers now at several Naval Bases, they have worked primarily with overflow jobs from other areas independently concerned with public works.

At Newport, the program will probably result in about 50 fewer persons working in this area by July next year. Navy also expects the program to reduce shops and shop equipment needed, to improve work scheduling and to allow for more specialized equipment to be used, that smaller organizations could not afford.

New Spending Directive Boosts Congress' Control

A new window through which Congress can keep an eye on defense spending is the aim of a recently issued Defense Department Instruction, signed by acting Comptroller John M. Sprague. The new instruction requires that the services report to Congress on certain categories of reprogrammed funds.

Specifically, the services must let Congress know on any changes over $1-million in operations and maintenance; in procurement, changes amounting to $5-million in estimated cost of a line item, or addition of any item costing over $2-million; and in RDT&E programs, $2-million changes will be reported.

These reports will continue, says the Instruction, until the entire appropriation justified by Congress has been spent. On military personnel, the order says all actions will be reported "which involve items in which the committees have shown a specific interest," without regard for the money amounts involved.

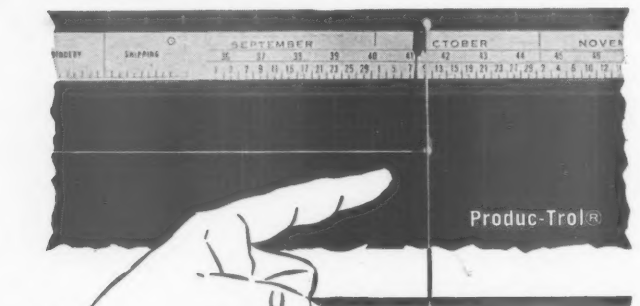
DOD Agrees on Budget; $41-Billion Probable

"Hold the line" is apparently the watchword for the fiscal 1961 Defense Department budget, with expenditures likely to stay fairly close to this year's $41-billion level.

New money for the Defense Department will amount to roughly $40-billion, with the total program slightly higher as a result of carry-over funds. It is likely that the various slices of the budget pie will be about the same as this year, with slight differences likely as a result of program cancellations or transfers.

Money for Advanced Research Projects Agency will probably be slightly less due to their losing their booster programs to the Air Force and Saturn to National Aeronautics and Space Administration. Although Army's expenses will be slightly less without ABMA to support, overall costs will not be enough less to avoid manpower cuts, although such cuts would probably be slight.

Air Force sources report that under



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the tentative budget that has been proposed, they will probably not be able to initiate a single new development project. It is equally probable that some programs may be dropped.

Shipbuilding Postponed In Navy Budget Move

In a move apparently dictated by budgetary problems, Navy has announced that it has delayed action on some 20 ships in its shipbuilding program.

Although Navy gave no reason for the postponement, it is likely that next year's reportedly tight budget has forced a stretchout in shipbuilding plans. Of the vessels concerned, 11 were new construction programs, and nine were major modernization projects.

Among the ships on which action was delayed were three missile frigates, two attack submarines, and modernization on seven destroyers and a cruiser.

With the budget for Defense Department reportedly holding at $41-billion dollars next year, in the face of rising costs it is fairly probable that it is a budget decision on the Navy's part rather than technical or other considerations.

Navy Places Contract For Marine Hercules

A $19.2 million contract for GV-1 cargo aircraft has been awarded by Navy to Lockheed Aircraft Corp. The planes—Navy's version of the C-130B Hercules—will be used by the Marine Corps.

Marines will use the plane for both aerial refuelling and as an intra-theatre assault transport. This means that Army will be the only service which must rely entirely on the Air Force for its heavy-duty airlift requirements. The heaviest plane Army has on hand or ordered is the de Havilland Caribou, which can lift only about 28,000 pounds. With this one exception, all Army aircraft are restricted to 5000-lb. capacity.

The Hercules is able to carry 35,000 pounds, and depending on the load, has a range of over 4000 nautical miles. This puts the plane in the strategic airlift category, while the lesser range and carrying capacity of the Caribou would probably limit it to tactical operations.

Small Business Program Made Mandatory by DOD

Defense Department has set up a mandatory small business program on most categories of defense contracts over $1-million. Formerly, between 200 and 300 defense contractors conducted such a program voluntarily.

Construction contracts, personal service contracts and contracts to be performed outside the U.S. are excepted from the program.

The program will require contractors and subcontractors to (1) name a small business liaison officer, (2) assure small business concerns of a fair opportunity to compete for subcontracts by arranging solicitations, providing time for preparing bids, and establishing quantities, specifications and delivery schedules, and (3) maintain records showing whether each subcontractor is a small business concern and the procedures used to assure small business participation.

The program was announced with a statement by DOD that small business participation under the voluntary program had brought only a slight increase in the January-June period this year.

Draper Committeemen Score Over-Budgeting

Sharp criticism of the Administrations treatment of foreign aid programs has been levelled by two former members of the President's committee to study the U.S. Military Assistance Program.

Former Presidential Advisor Maj. Gen. W. H. Draper (ret.) charged it would be a mistake to cut foreign aid as a means of halting an existing or potential unfavorable balance of trade between the U.S. and foreign countries. Draper said it would be a mistake to "jeopardize our military and strategic positions" unnecessarily.

Another member of the Draper Committee, Marx Leva echoed the committee chairman's views. Both attacks came after indications that instead of increasing foreign aid, as the Draper group suggested, the Administration was planning to cut the program.

Standardization Meeting Conducted by Army

Army Engineers from three countries —U.S., England and Canada—met last month at Fort Belvoir, Va. to discuss and consider recommendations for standardardizing equipment and military engineering procedures.

Among the specific considerations that were treated by the meeting were bridging and gap crossing, barrier and obstacle operations, field defenses and protective shelters, concealment and deception, engineer logistics and major equipment, and, engineer intelligence.

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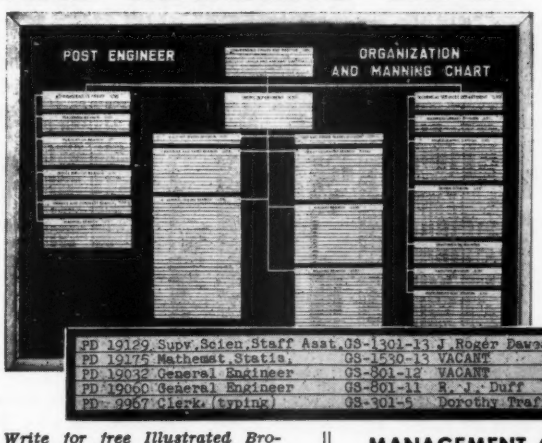
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Research Rundown

IN RESPONSE TO McELROY DIRECTIVE naming Air Force as single space manager for Defense Department for boosters and vehicles, Deputy Chief of the Air Staff for Development has created an Assistant for Astronautics Systems, Brig. Gen. H. A. Boushey. Although it is still likely that NASA will get most of the booster work, the new Assistant will serve as a central point of control for those systems developed by AF.

INCLUDED IN THE CONGRESSIONAL CALENDAR for next session will be an investigation promised by Rep. Overton Brooks into the Boron/Zip fuel affair. Both Navy and Air Force—through Callery Chemical and Olin Mathieson respectively—built plants for making the fuels. Neither have actually produced any of the fuel, one has lost its contract, and the other is holding on only by the skin of its teeth. The point of query: "Why did you build two plants in the first place when you were only guessing at the need for the fuel, and in the second place, why all this stumbling around in the first place?"

RESULTS OF THE BORON HEARINGS, and possibly whether or not the hearings will be held at all, will hinge closely on a recently completer study by the Air Force, taking a long look at how much of the fuels will be needed for what. The report—which has gone to OSD—is under closest possible wraps, in an attempt to avoid the sort of leak that allowed the press to learn about the contract cancellation before Congress was notified.

NEW ANGLE ON DEVELOPMENT CONTRACTING is pointed up by Air Force's split decision on Dyna-Soar, giving Martin booster responsibility, resting the vehicle itself with Boeing. Aim is to get the best of everything. Question: Since both Martin and Boeing competed on a team basis, with Bell serving as Martin's propulsion team member, and since propulsion at this point will reportedly hinge around Titan, what happens to Bell?

QUIETEST MAN AT THE RECENT AMERICAN ROCKET SOCIETY meeting—at least according to previous speculation—was Wernher von Braun. Reportedly Army asked him not to sound off about the transfer-to-NASA. Army move appears logical taken with ABMA Commander Medaris' "loathness" to say that NASA offers best spot for central space work, intentions to retire next year.

PUTTING REAL TEETH IN ARDC'S REORGANIZATION and new management set up will be some of the best Air Force managers in the business brought from Ballistic Missile Division with Gen. Schriever. Among them: Col. R. K. Jacobson, former project officer on the Thor, and Col. V. T. Ford, both in Schriever's Command Policy Office, and heading the Ballistic Missiles and Space Division, Col. O. J. Glasser, former Atlas project officer.

FAST WORK IN SETTING UP NAVY'S BUWEAP, and a program ready-made for the new organization should put the new Navy Bureau to an early test. Missileer concept, mating relatively slow and inexpensive aircraft with high performance missile for air defense work, will be ready for a design competition decision shortly after the first of the year, and will offer an excellent opportunity for the new set-up to use all of its muscles.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION appears to face a heads-you-win-tails-we-lose situation in going to Congress for funds this year, given the recent Russian space successes. Heads: requests for a sizeable increase are sure to cause question on why NASA under-programmed last year. Tails: if NASA asks for a moderate increase, Congress is likely to ask why, if they don't need more money, Russia continues to stay well ahead of the race.

Centralized Space Work Foreseen by Medaris

A major step towards a truly unified space program with central direction may be indicated in the transfer of Army Ballistic Missile Agency to National Aeronautics and Space Administration, according to Maj. Gen. J. B. Medaris, chief of Army Ordnance Missile Command.

However, Medaris was "loath to say" that NASA was the best organization to handle such a job. Medaris announced plans to retire shortly after the decision was made to transfer ABMA to the civilian space agency.

Medaris told a California press conference that "unless there is general agreement on what to do," a single military missile management system would do little, even though "the present fractioning setup is not helping to get the job done."

Medaris commented that there are currently too many projects underway in this area, and some could be dropped to achieve greater concentration on those others with more far-reaching implications. This, he added, would also eliminate present concentration on marginal product improvements in favor of more profitable gains in overall missile technology.

Research Costs Eased By Defense Department

Defense Department contractors working in applied and basic research can now expect a better break on allowances for cost. A new section XV in Armed Services Procurement Regulations on contract cost principles has substantially eased former regulations in this area.

The new section provides that a contractor's independent research and development costs will be allowed as indirect costs provided that development work is related to product lines for which the Government has contracts, and that costs are reasonable. The ruling generally excludes costs incurred in accounting periods prior to the contract and makes allowance for indirect and administrative costs.

The DOD definition of "reasonable" will hinge on such matters as previous contractor R&D activity, cost of past programs and changes in science and technology. The new rules establish for the first time that listed costs may be used as guidelines in negotiating and administering fixed-price contracts, and would be used mainly in negotiated fixed price contracts, price redeterminations and fixed-price incentive contracts.

Listed costs specify the DOD position on areas including advertising, profit sharing plans, contingency costs, depreciation, excess facility costs, interest, material, plant reconversion, severance pay, state and local taxes, termination costs, and training and educational costs.

Incentive Contracts To See Wider AF Use

Air Force wants—and is working for—greatly increased use of the new cost-plus-incentive-fee contract, according to Maj. Gen. W. T. Thurman, production programming assistant to Deputy Chief of the Air Staff.

Thurman told the recent American Rocket Society meeting that the incentives to be honored would include performance as well as cost. In this light, the contractor would probably work towards an agreed standard of reliability. Incentives would be paid if this standard were exceeded, and forfeited if the reliability were not met.

Thurman also underlined the growing support that Defense Department is giving research and development in industry. He cited particularly the more liberal cost allowances being given under new ASPR provisions, and pointed out that as long as development hardware is more heavily emphasized that production work, the above trend would probably continue.

The assistant to the Air Force DCS Materiel also said that all of the services and prime contractors would have to give more attention to how subcontracting dollars are spent. Thurman said that with fewer expensive and complex weapons, it often appears that management is not aware of the amount that subcontracting has increased.

New Control System Planned for AOMC

An advanced combination of communications and electronic data processing equipment is being developed by Army Ordnance Missile Command to enable closer control over that agency's 15 major weapon systems.

Aim is to have a fast reference service for information concerning these projects. When completed, the system will link AOMC with other ordnance districts in the Army, and will further set up electronic contact with several prime contractors working on Army missile programs.

The system is already partially in operation, and will be completed by the end of the year. Basically the system will rely on paper tape. At each of the several points throughout the system, there will be a Flexowriter, a dual Teledata machine, and, as needed, a tape-to-card punch, and data processing equipment.

In a two-point test operation, the system proved its ability to save as much as two weeks on certain procurement action. The system operates at about 200 words per minute, and is equipped with a telephone hookup to allow voice communications between sender and receiver.

A-Plane Program Scored For Lacking Objectives

A combination of two drawbacks—lack of interservice competition and ill-defined objectives—bear chief responsibility for the poor showing that has been made by the nuclear powered aircraft, according to AEC Commissioner John F. Floberg.

Floberg also charged that too much money had been given to the program too soon, and that the problems involved were compounded by the overambition of program requirements. He also said that the U. S. is several years and several hundred million dollars from first nuclear flight, and nearly 10 years away from operational numbers of the craft.

Shortly before Floberg made his remarks, AF nuclear plane Chief Brig. Gen. Irving Branch said that funding on the program would either stay at the same level or go up only slightly in the next year's budget. Branch also said that an airframe for the plane can be developed in time to be mated with the engine.

Electronics Director Appointed by AMC

Maj. Gen. Clyde H. Mitchell will take over as the first director of Air Materiel Command's new Electronics Systems Center at Hanscom AFB, Mass., as this issue goes to press on 1 Dec.

The new position was created as a result of recent changes in the Air Research and Development Command. Gen. Mitchell will work with the not-yet-formed Command and Control Division of ARDC, in the same manner that Brig. Gen. B. I. Funk has worked with ARDC's Ballistic Missile Division in the past.

The former commander of Rome Air Materiel Area will be replaced in that position by Brig. Gen. C. B. Root, former chief of AMC's Electronics Defense Systems Division. This division, under present planning, will be absorbed by the Electronics Systems Center early next year. Until then, it will be under command of Gen. Mitchell.

The new center will be staffed by about 400 people by the first of Au-

gust next year, with many of these persons coming from other positions within AMC. As stated by Gen. S. E. Anderson, the aim of the new division is to "establish one location under one commander an organization responsible for the acquisition and delivery of large, complex ground electronic systems and for managing the AMC functional elements involved in these programs."

AF Plans to Contract Mammouth Rocket Engine

An Air Force feasibility contract is in the works with an eye for testing the concept of a solid-propellent engine twice as large as any other now under development, according to Maj. Gen. V. R. Haugen, Air Staff Director of Development Planning.

Speaking to the Public Relations Society of America, Haugen said the Air Force is working hard on storable liquid propellants, since they offer greater performance advantages, with about an equal break with solids on other characteristics, such as storage.

Haugen also foresaw an expansion of present Cape Canaveral facilities, and specifically cited work on a 1.5 million pound thrust rocket test stand now being built at Edwards AFB, Calif. Haugen said "we are planning more launching pads to accommodate rocket engines with thrusts substantially greater than those now under development."

The Air Force Research manager saw the possibility of hydrogen as a means to attain an efficient system for the so-called 24-hour orbit.

Army/NASA Rocket Probes High Electron Densities

In cooperation with National Aeronautics and Space Administration, Army has launched a five-stage research rocket from Wallops Island, Va., to proble upper atmosphere electron densities. The vehicle reached an altitude of 1050 miles.

The vehicle consisted of an Honest John, two Nike-Ajax boosters, a modified Recruit and a "scaled" Sergeant. The rocket set a new altitude record for Wallops Island firings. During its 20-minute flight, the rocket traveled 800 miles out to sea.

Primary interest in the experiments was in learning how ionization decreases with altitudes above 187 miles. Militarily, the experiment is expected to yield information that will be valuable in determining environmental problems with ballistic missiles.

New Radar Tubes Aid Nike-Zeus

A new type of high powered klystron radar tube will aid the Army's Nike-Zeus anti-missile system in tracking down its targets at longer ranges, and with greater certainty, according to Department of the Army.

The new radar tube is termed a "technical breakthrough" by Army, and will have the ability to both generate and precisely control a large amount of high frequency radar power, thus yielding increased accuracy, speed and surety in tracking small, fast targets at longer ranges than before.

Working with the technique of focussing electrons, engineers working with the new tube were able to cut the size of a former twelve-foot model of a similar device. They klystron was developed by Sperry Gyroscope Co.

AF Space Position Stated by Schriever

The Air Force position in the race to space has been outlined by Lt. Gen. Bernard Schriever in a recent Washington speech. Schriever told the Aero Club that the military should be given control of space projects because of the necessity for survival which acts as an incentive for military operations.

Schriever said no civilian agency has this incentive, and therefore are not able to put forth the same energy. Before speaking, Schriever remarked that he had had some trouble getting his remarks cleared by the Pentagon. Air Force is presently the only space vehicle and booster agency in Defense Department, and as such would be given control of any projects transferred to the military.

Industry Developments

Dyna-Soar Contracts Go To Martin and Boeing

Air Force has announced a split decision between The Martin Co. and Boeing Airplane Co. in their competition for development contracts on the Dyna-Soar manned boost-glide spacecraft.

Boeing will manufacture the vehicle itself, and maintain responsibility for subsystem and booster integration, and assembly and test of the final vehicle. The Martin Co. will build the booster for Dyna-Soar.

First step in the program will be to develop a glider which will bring its pilot safely to earth after hypersonic flight. Tests with unmanned and manned gliders will be run from Cape Canaveral to probe the technical problems encountered at near-orbital speeds.

The program will be a joint effort for the Air Force, with Wright Air Development Division handling the vehicle, and Ballistic Missile Division working with Martin on the Booster.

Activation Division Made Firm by Martin

Permanent headquarters for The Martin Co.'s activation division will be in Denver, Martin has announced. The newest of eight divisions in the company, the Activation group will serve as a management organization to handle the broad scope and magnitude of the Titan missile program.

The new division has the immediate responsibility of administering and coordinating the combined effort of all Titan associate contractors presently engaged in building and activating of the Titan training center at Vandenberg AFB, and the first Titan operational base at Lowry AFB, Col.

Martin move fits in with the Air Force concept of concurrency, i.e. that the bases for the Titan will be ready when the missile is.

In other missile construction news, two launch silos for the solid-propelled Minuteman ICBM are under construction at Cape Canaveral by the Dravo Corp. The silos will be cylinderical reinforced concrete caissons, 109 feet deep, 34 feet in outside diameter, with four-foot concrete walls.

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Newsletter

Armed Forces Management Association
Washington 25, D.C. Phone: OTis 4-7193

National President: Hon. George H. Roderick **Executive Director: VAdm. Harry E. Sears, USN, ret.**

PROGRAM

Your National Headquarters is impressed with the number of fine programs it has received from various chapters in the field as their activities mount for the fall and winter season. These programs, by and large, embrace a wide variety of management subjects with multi-service and industry participation.

Our salute this month goes to Mohawk, Great Lakes-Chicago and Atlanta Chapters for the comprehensiveness of their programs and their membership gain. Mohawk Chapter at Griffis AFB, is presided over by Mrs. Alice Lee MacHarg, AFMA's only woman president. Unilaterally and in concert with other management type associations, Mohawk's chapter has achieved a high degree of prestige with Center and Base commanders, and military and civilian personnel in the Rome, N.Y. area. With a concerted membership drive now in progress, this energetic group definitely has its sights set on the outstanding chapter award for this year.

Although one of AFMA's youngest, Great Lakes-Chicago Chapter is serving as a model of chapter activity with the comprehensiveness of its program and attendance at chapter meetings. Employing a mixture of management subjects, types of meetings and varied locale for its get-togethers, this chapter has built up a wide interest in its activities among civilian and military officials of all services, and in industry in the important Chicago area. President, R. V. Smith, 9th Naval District HQ; Secretary, Mrs. Shyrle Altemus, same; Program Chairman, John F. Burke, HQ 5th Army; Treasurer, Capt. Norman Smith, Air Force Procurement Office, Chicago—a truly unified group (Marines, too!) Less than a year old, its membership has risen from 65 to 111 in six months, a great tribute to chapter officers, and to the fine support of flag and general officers and their subordinate commanders in the area.

Atlanta Chapter at Fort McPherson, sponsor of the 1960 National Conference, continues the excellence of its program and membership gain. Its membership has risen from 114 to 141 in the past quarter, giving this chapter a fine factor in this area of the chapter awards program.

MEMBERSHIP

It is with pleasure that we announce that AFMA membership count now stands at 176% of the June, 1958 count. Corporate Membership gain is even more impressive—825%—an indication of the high regard in which your association and its objectives are held by our country's industrial community. We hope and feel that this impressive rise is only the beginning of a steady membership growth that will find AFMA with 10,000 members, 100 chapters and 200 industry memberships by 1962.

Realization of this objective is dependent upon all of us to bring in new members, stimulate the formation of new chapters and arouse general interest in the Association and its services. We have a sound product—more efficiency, effectiveness and economy in the employment of our national defense resources through improved management practices—so let us "tell it and sell it" and sell it well! In this connection, all required information on AFMA—its purpose, program, progress and projection, along with membership application—has been combined in a single attractive brochure which is now available and is being distributed to all chapters, corporate members and members at large. Additional copies available at National Headquarters upon request.

NATIONAL CONFERENCE

Planning for 1960 annual conference to be held 19-21 April in Atlanta under sponsorship of Atlanta Chapter, with Atlanta General Depot Chapter assisting, is proceeding well. From the lessons learned from this year's outstanding event, it is expected that the timetable will be considerably improved for the membership and their guests. Travel authorization within existing regulations governing professional meetings is being requested of all services. All of the membership that can are urged to attend. Conference theme: "Management's Role in the Reduction of Lead Time."

Regardless of the area of management in which you have a primary interest, there will be a message of interest to all in this important and provocative keynote.

ADMINISTRATIVE NOTES

Chapters are reminded to turn in periodic progress reports as called for by Part 5 of Chapter Manual. These are essential if chapter is to qualify for outstanding award.

1959 Conference Issue of the AFMA JOURNAL is now at the printers and should be in the hands of the membership soon. Scope and comprehensiveness of content make this issue a very valuable reference.

Final portion of the Chapter Manual, Part 3—Programs, is being developed from material received from chapters and should be distributed soon.

All Administrative functions are now localized in the office of the Executive Director. Address all communications to Armed Forces Management Association, Washington 25, D.C.

A supply of 17″ by 14″ chapter seals in color and suitable for framing for chapter use is now available at HQ.

CHAPTER BRIEFS

National Capital Chapter has resumed its Financial Roundtable meetings which enjoyed so much success during the past season. Jointly sponsored by AFMA, SAM, ASPA & FGAA. On 13 October, the chapter held its first dinner meeting at the Army & Navy Club in Washington. The Association's Executive Director spoke briefly on program and progress at the national level and was followed by an outstanding presentation on "Moral Leadership" by a Navy Department team of Capt. William T. Sutherland and Frederick C. Dyer.

Another chapter taking advantage of the Navy's Moral Leadership Program presentation was Mohawk at its 17 September meeting. Presented by Cdr. R. J. Loomis and his team at Griffis AFB theatre, this AFMA sponsored effort evoked enthusiastic response from the large number of members and non-members in attendance.

Great Lakes-Chicago Chapter held its September dinner meeting at Fort Sheridan. The Program Chairman drew on civilian and military experts from a wide variety of military installations in the area, and from industry, to put on very instructive panel presentation on "The Effect of Automatic Data Processing Systems on Management."

Roderick Presides As AFMA Directors Meet

Chaired for the first time by its newly elected Chairman (and National President) the Hon. George H. Roderick, the Board of Directors of the Armed Forces Management Association conducted its quarterly meeting on 10 November in Washington.

A resume of AFMA operations since the last meeting of the Board was given by the Association's Executive Director, VAdm. Harry E. Sears, (USN ret.). He was followed by other National Officers who made reports in their areas of interest as follows: Vice Presidents, Howard Hyde (Plans); Brig. Gen. Chester R. Allen, USMC (Programs); Col. James L. Tarr, USAF (Chapters); Eldon Sweezy (Publications); and Adm. Sears (National Conference) for Col. William C. Howell, Comptroller Third Army, who was unable to be present. Lt. Gen. Arthur G. Trudeau, USA and VAdm. O. S. Colclough, President of George Washington University concluded the reports as heads of the Editorial Advisory Board and Educational Institutions Advisory Council respectively.

The meeting revealed that (1) the finances of the Association continue in excellent shape; (2) the program initiated last year is sound and has long range application; (3) a number of new chapters will be chartered soon and membership is growing; (4) Publication quality continues commendable; a future increase in technical matter to be issued is being studied for feasibility; (5) National Conference planning is proceeding satisfactory, with next year's meeting to include more chapter participation. (Elaboration of the Board's findings and plans are covered in more detail in the Association's Newsletter).

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Military Division CESSNA

For more facts request No. 10 on reply card.

Adm. Sears Promoted; Now Vice President

Vice Admiral Harry E. Sears (USN ret.) has been promoted to Executive Vice President of the Armed Forces Management Association.

Sears, former Navy Chief of Information, has been directing the activities of the Association for the past year as its full-time executive with the title of Executive Director.

Chairman and President of AFMA is the Honorable George H. Roderick, Assistant Secretary of the Army, (Financial Management). Vice Chairman and Vice President is Lt. Gen. Roscoe C. Wilson, Deputy Chief of Staff, Development, U.S. Air Force.

Three New Chapters To Receive Charters

Requests for charters from three chapters in the final stages of formation have been received in the Headquarters of the Armed Forces Management Association. Chapter names, with military installations upon which located follow:

Naval Weapons Plant Chapter #34, Naval Weapons Plant, Washington, D.C.

D. C. Science Chapter #35, Diamond Ordnance Fuze Laboratory, Washington, D.C.

SACOMA Chapter #36, Headquarters, Strategic Air Command, Offutt Air Force Base, Nebraska.

Representing three services and installations with widely divergent missions, these new chapters will be a welcome and potent addition to the AFMA organization and its store of management knowledge, methods and techniques. The National Headquarters, and the Association as a whole, welcome these groups to our expanding chapter family and commend the military officers and civilian personnel who have made these chapters possible.

AMERICA'S PARTNERS IN PROSPERITY

Americans are often characterized as the world's champion "joiners." We join officer's clubs and art clubs and bridge clubs and social clubs and—but why go on? There's a club for virtually every purpose.

Under the circumstances, the phenomenal growth of investment clubs in recent years isn't really surprising. Springing up in cities and towns all over the country, these clubs now number about 15,000. And they invest a total of some $2 million a month.

In case you haven't come across one yet, investment clubs are simply groups of friends, neighbors, business associates or fellow servicemen who get together to discuss securities—with the idea of investing a small sum in the stocks of their choice. Once a month they learn the ABC's of investing by actually investing on a group basis themselves.

The Amateur Investors Club of Madison, Wisconsin illustrates how much a few friends can accomplish in what used to be the mysterious world of investing. The president, two salesmen, the bookkeeper and eight other employees of a paint and varnish company invest $10 a month, and then the fun begins.

Armed with annual reports, financial statements and suggestions requested from a broker, a rotating "investment committee" of members studies the merits of various issues and recommends its choices at a regular monthly meeting. Frequently a number of ballots are necessary before the club reaches a decision on what stock to buy. The club's portfolio is reviewed periodically to decide whether to hold on to their stocks or to sell and buy others.

The Madison group has put its money into utilities, industrials and other well-known companies. At the end of the first year, they showed a small profit. But even so, members realize it generally may take a number of years before they can register any significant gain.

In the beginning the club in Madison started with nothing more than a desire to put their small extra funds to work in an enterprising way. They learned that organizing a club was fun, and easy if they followed a few simple suggestions.

If you happen to be interested these same suggestions will be helpful.

Choose congenial members, and keep the number small. A group of more than 15 gets unwieldly. If you can include a friend who knows something about law and/or accounting, so much the better. They can help with legal and bookkeeping problems that come up.

Select a broker in the area to handle club investments. Member Firms of the New York Stock Exchange are available in more than 650 cities throughout America. The broker will do more than tell you how to organize the club, conduct meetings and set up accounting procedures. He will also supply investment booklets, company reports and earnings statements.

With the help of a good reputable broker, many clubs have found it to their advantage to explore these reports and statements in pursuit of the sort of growth stocks they want. From time to time the broker may even provide additional material from the analysis department of his own firm's main offices.

Agree on the amount each member will contribute for investments every month. While figures vary from $5 to as much as $100, which means there are clubs flourishing in Texas too, most clubs have decided on a figure of $10.

Plainly, you shouldn't expect miracles from your club. Over the long term, of course, you may find your investments increasing in value. But the important thing is that you and your club will be acquiring vital savvy as well as dividend checks.

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In My Opinion

More MATS Comment

My opologies for not getting this sincere word of thanks out to you sooner, both for your fine, comprehensive article and your consent to let us reprint same.

You will be interested to know that we forwarded copies . . . to key staff personnel throughout the Command. The reaction at all levels has been very enthusiastic. Further, your article is, and will continue to be, circulated among those military and civilian alike who are interested in our efforts.

Thank you again for your most welcome interest and support. I hope that you will find the opportunity to call on us again soon.

Capt. A. C. Cochrane, Jr.
Directorate of Information Services
Hq., Military Air Transport Service

No Management in the Rockies?

Upon reading the article "Fresh Wind From the Rockies," in the October issue, I was surprised to note the absence of any mention in the curricular on the subject of management training. How can we produce the highest type officer personnel without some emphasis on management, for what is a leader, but a manager of persons and things? I sincerely believe that if more emphasis is not placed in the area of Industrial Organization and Management, Personnel Administration and getting across the meaning of the works "initiative" and "cost consciousness" then the billions of dollars being spent on manpower and materials are going to insure us right into the poorhouse.

The excellent management of the academy is a necessity, but is the subject being taught?

Another conspicious absence is the mention of the program on Moral Leadership and Character Guidance. Thousands of manhours are being expended throughout the operating forces on this subject, but if our leaders are not being at least equally indoctrinated, then how can we expect our followers to follow?

Lt. Billy R. Mitchell, USN, SC
U.S. Naval Auxiliary Air Station
Saufley Field, Fla.

Kind Words From Army

General Decker has asked me to thank you very much for the copy of the November issue of ARMED FORCES MANAGEMENT.

He thought that your description in the article on the Department of Defense of the Army's performance of its role as a member of the Defense Team was excellent. I am sure General Decker enjoyed reading it . . .

Lt. Col. J. W. Walters, Jr.
Executive to the Vice Chief of Staff

Charts Chosen for Training

If any of the charts you published in the November issue of ARMED FORCES MANAGEMENT are available I would appreciate receiving copies of the big organization charts showing the structure of the Army, Navy and Air Force. The charts would be used in executive training in the Department of the Army.

Terry Miller
Office of Chief of Staff
Civilian Personnel Office
Department of the Army

Happy to help a worthy cause . . . they're on the way—Ed.

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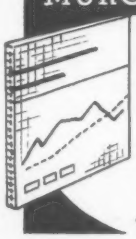
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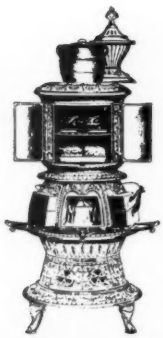

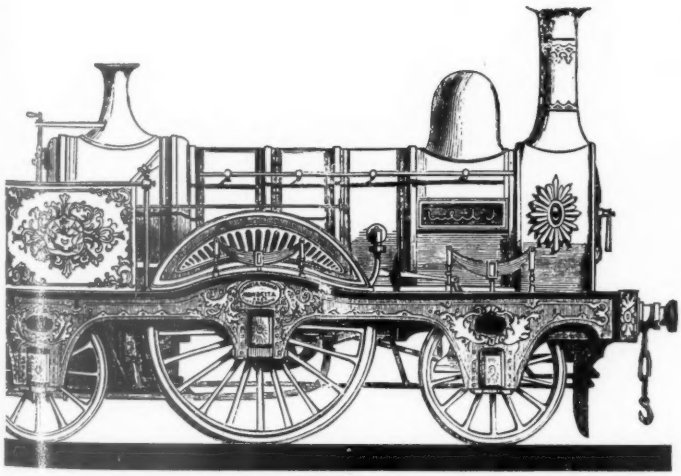

Current Martin Nuclear Division Programs:

Portable Packaged Power Plants

Plate, Tubular, & Ceramic Fuel Elements

Liquid Fluidized Bed Reactor

Radionuclide Power Sources

MARTIN

The eight divisions of The Martin Company are Activation, Baltimore, Cocoa, Denver, Nuclear, Orlando, RIAS, and Space Flight.

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What's it costing you to train new drivers?

$1,000? $1,500? $2,000? These are normal costs for training new operators —except for TORQMATIC DRIVE owners. They report saving up to $2,000 every time they break in a "rookie."

Reason? TORQMATIC takes guesswork out of shifting – ends shock-load damage and the need for engine-disconnect clutch repairs. TORQMATIC *automatically* adjusts engine output and speed to load or terrain changes.

TORQMATIC owners know that no operator can handle the "stick" and clutch as smoothly and efficiently—*every* time – as an Allison TORQMATIC. They bought TORQMATIC because they know, too, what it costs when rookies make a shifting and clutching mistake.

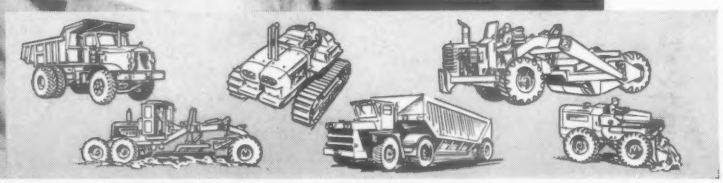
How can you eliminate these costs?

Look beyond first cost and see the total cost. Then change from clutch-pedal equipment to Allison TORQMATIC. You'll save costly engine-disconnect clutch replacements, too-frequent overhauls of overtaxed engines, repair bills for shock-load-damaged axles and drive lines.

Why not get the full story today? See your equipment dealer or write Allison.

ALLISON DIVISION OF GENERAL MOTORS
Indianapolis 6, Indiana
In Canada: General Motors Diesel Ltd., London, Ontario

Allison TORQMATIC



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THE MODERN DRIVE FOR MODERN EQUIPMENT